

MAJOR JOHN WESLEY POWELL: LEADERSHIP
ON THE COLORADO RIVER, 1869

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE

by

CURT LAPHAM, MAJOR, USA

B.S., Michigan State University, East Lansing, Michigan, 1983

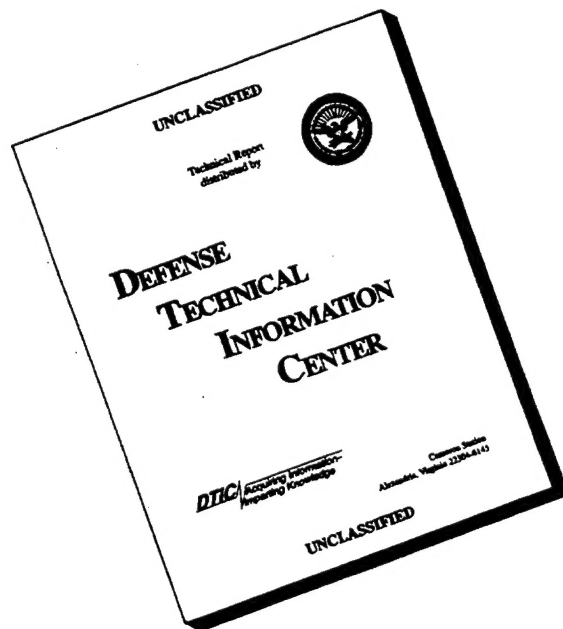
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ABSTRACT

MAJOR JOHN WESLEY POWELL: LEADERSHIP ON THE COLORADO RIVER, 1869
by Major Curt Lapham, USA.

One of America's greatest naturalists and explorers is Major John Wesley Powell. His work includes the following: leadership of the initial expeditions to the Grand Canyon; leadership of the United States Geological Survey, Bureaus of Reclamation, and Ethnology; and founding member of the National Geographic Society. His landmark study on arid lands formed the blueprints for the development of the West. The Powell Expedition's epic journey is a popular subject; however, there exists a void in understanding Powell's leadership of the last great discovery in North America--the Colorado's canyon system.

Major Powell was an experienced leader who employed his knowledge of leadership to lead his expedition where a lesser experienced person would likely have failed. He understood military leadership by way of study, observation, and practice. The study investigates Powell's background and Civil War experience for their developmental effect on his leadership during the 1869 expedition, and on the relevancy of his influence for modern military leaders.

The study concludes that while some of Powell's actions diverge from the principles embodied by modern Army leadership doctrine, the American military leader can learn a great deal from Powell's successful leadership and its harmony with current leadership practices.

To the memory of Major John Wesley Powell

His lifetime of sacrifice and service to America will always stand as an
example for others to emulate.

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CHAPTER ONE

INTRODUCTION

Throughout the ages military leaders have studied their predecessors to derive the source of their success. How did Gideon (Old Testament) convince just 300 men, each armed with only clay pots, torches, and trumpets, to follow his lead and attack the Midianite host of 135,000?¹ Why would David's men risk all by penetrating the mighty Philistine lines simply to bring a sweet cup of water from Bethlehem's well to their commander?²

Leadership is unquestionably a military officer's greatest possession and, as such, has become a subject of great interest not only because of its worth, but also because its exercise is so hard to define.³ The conventional approach examines the lives of great leaders or draws from their actions a list of personal characteristics.⁴ This methodology identifies common traits that great leaders have possessed. These qualities, much as general principles of war, theoretically provide future leaders the tools for success.

Quite often the military ignores small unit leadership as a potential mainspring source upon which to discover portions of personal leadership theory. Additionally, if these are truly universal leadership principles, then they should exist apart from the military environment of war.

This study selects a small unit leader Major John Wesley Powell--a man familiar with military leadership theory by way of study, observation, and practice. Powell is a fascinating character, one of those rare Americans who embodied the qualities of soldier, explorer, scientist, and patriot. After leaving the Army, Powell was a small unit leader of two closely related expeditions, leading to the discovery and mapping of the Grand Canyon. These journeys required application of all his previous leadership skills. Powell provides the perfect individual to explore because of his small unit and senior level leadership experiences.

This author's interest in Powell stems from our common backgrounds and interests. Powell, a Midwesterner, exhibited a passionate devotion to all areas his hands touched. He loved being in God's creation and enjoyed sharing his experiences with others. Always brave, he had the ability to persevere in defiance of deprivation or loss of limb. The Major, as forever known after the Civil War, loved his country, committing himself to a lifetime of service.

I am a midwesterner, having graduated with a degree in Forestry. I have been to the rivers and canyons that Powell discovered and have climbed many of the same mountains. I have long known of Powell--the Geologist but only recently learned of his distinguished career in the Civil War. As a major in the United States Army, I am committed to serving our citizens. It will be for posterity to decide if we are equals in character.

An interest naturally exists when you discover your forefather was mentor to both Powell and several men who greatly influenced the

path his life would take. On reflection, I can see how the influences of a few men have greatly influenced my path, and to that end, We seem almost as kindred spirits although there is the chasm of time between us. Perhaps more importantly, by studying Powell's life, I believe other leaders can gain insights and strengthen their abilities.

Thesis

What can be learned from an examination of John Wesley Powell's life up to the conclusion of his first expedition down the Colorado River? Several related subordinate questions emerge from this study. Foremost, why is Powell worthy of study by today's leaders? Furthermore, what factors influenced his leadership development? Finally, did his leadership reflect what is expected today from a junior leader at the small unit level or was the major a senior leader?

Significance of the Study

Initially, the study establishes the historical context of Powell's early years and military experience during the Civil War; the primary focus is on his development as a leader. This work then examines his leadership during both expeditions. A combination of historical review and analysis of Powell's Colorado River expedition provides a historical perspective and analysis of his leadership. Research findings will answer the primary question by demonstrating that a study of Powell's life will give insight into factors to look for in studying small unit leadership.

Literature Review

This author discovered the literature provided many facts, such as his decisions or actions during the Civil War, while telling the story of Powell's life. Nevertheless, there is almost a complete void of literature specifically addressing his leadership. What was there, was useful to draw inferences and develop an analysis of Powell's leadership. In which case an overall assessment of his life and the impact of mentors on him was feasible.

Major John Wesley Powell's background, executive service, and methodology for preparing and leading the two Grand Canyon expeditions were researched. Beginning with the latest secondary sources, which draw heavily upon late nineteenth and early twentieth century secondary sources and ultimately provided one of the pathways to primary material. A second point of departure developed from text and notes found in these early biographies relating Powell letters to various newspapers and science journals.

John Wesley Powell's Early Leader Development

There were only a few select biographies and note sources for researching the early years of John Wesley Powell. The first was an epilogue in the back of The Romance of the Colorado River, by F. S. Dellenbaugh. Dellenbaugh accompanied Powell as the artist for the second expedition and later wrote several books on both expeditions. Dellenbaugh, however, was not a serious researcher but a man of his convictions. Although his great adventure ended at age nineteen, he leveraged it to an advantage for the remaining sixty-two years of his life. It appears as the years passed, his regard for Powell turned into

total veneration.⁵ Eight months prior to his death, Dellenbaugh took a reflective view of his long life. He deduced the hand of fate had led to his journey:

I have really been moved by some impelling force, destiny, or what not--to have been more or less connected with the exploration of the Colorado River and producing my book A Canyon Voyage which turns out to be the only narrative record of the Second Powell expedition. . . . And later when all the others were gone to fill the place of defender of the Major against scurrilous attacks on his fame? In short was it my "destiny" all the time to aid the Colorado River work and to produce willy-nilly the sole story of the Second Expedition?⁶

It is important to consider Frank Dellenbaugh's slant towards Powell. He is correct concerning the Second Expedition, his narrative works A Canyon Voyage and The Romance of the Colorado River are the only books on this expedition. However, careful research turned up journals and letters from those on the expedition that balance or confirm Dellenbaugh's account. The epilogue to The Romance of the Colorado River is especially significant because it provides one of the few places for background information on Powell. Researchers have used it as a secondary source because of its broad coverage of Powell's early years. This author regards the source as accurate, since Powell's brother Walter and brother-in-law A. H. Thompson provided most of the facts to Dellenbaugh about John's life only months before his death.

Material on Powell's life prior to the Civil War has proven difficult to locate. William C. Darrah's biography of Powell, titled Powell of the Colorado, was certainly the exception to the norm of limited and suspect information. Darrah carefully consulted many diaries and primary records over almost twenty years to craft an excellent account of Powell's early life. Marian T. Place's biography

of Powell, titled John Wesley Powell--Canyon's Conqueror, was also a good account of Powell's early life. The only fault with this book was its intended youthful audience which limited the depth of the biography. The final source of background information was gleaned from Mrs. M. D. Lincoln's biography of Powell's life called John Wesley Powell--A Memorial to an American Explorer and Scholar. Mrs. Lincoln provides the only book where they actually interviewed Powell. It was intended by Powell to record his life through her and negate the necessity for an autobiography. These three sources were critical to the author's ability to address the questions on factors influencing his leadership development and on the maturing of his leadership capabilities.

John Wesley Powell's Leadership During the Civil War

This author discovered, for the Civil War period, passing references to Powell in the Official Records of the War of the Rebellion. These items provided insight into Powell's Civil War years. For example, Powell's initial commission was received from General U. S. Grant as an engineer lieutenant, and later transferred to artillery to raise Battery F, Second Artillery, Illinois Volunteers. This work also served to validate the accuracy of other accounts. The Civil War records compiled by the Adjutant General of Illinois in 1880 provided a detailed account of Powell's service at both Shiloh and Vicksburg. A more recent work by Frank J. Welcher, The Union Army 1861-65, Volume II, contained dozens of references to Powell, including his assignments during the Civil War.

The number of inaccurate accounts of his war years found in various articles and books of Powell's life were surprising and

definitely contradict official accounts. This could make sense when considering his war experiences are subsidiary, providing only background color to books on Powell as the explorer or scientist. Nevertheless, these two books provide a great amount of facts to draw inferences concerning the character of Powell's leadership and his opportunities to demonstrate it. Additionally, all three books covering Powell's early years contain chapters on his war experiences. In this study of Powell's leadership during the two expeditions, the Civil War years form an important source to later analyze the character of his leadership.

John Wesley Powell's Leadership of the Colorado Expeditions

Powell principally recounted the majority of the primary source material of the Canyon voyages. His first dispatch to the public came on May 24, 1869, and was printed by the Chicago Tribune on May 29 as "Powell's adieu."

In this first letter, Powell discusses the financing, logistics, and purpose of his expedition, providing an often quoted but seldom referenced proclamation "to add a mite to the great sum of human knowledge."⁷ The actual events of the 1869 and 1871 expeditions were researched last.

Frank Dellenbaugh, a young artist and cartographer on the second expedition, published two books on the Powell Expeditions The Romance of the Colorado River and A Canyon Voyage. The former was released the same month Powell died, with Powell giving a personal endorsement of its

reliability in covering both expeditions. Only the second edition, printed in 1904, contains the important epilogue discussed earlier.

Elmo Watson obtained some of Powell's personal letters while preparing his book The Professor Goes West and provides many important insights into these events. This obscure book contains several interesting sidenotes and facts about Powell's life. An excellent example includes the Powells' lunching with U. S. Grant and George Custer, and Mrs. Powell scaling the formidable Pike's Peak (the first Woman to do this entirely on foot). This book provides important facts of Powell's organizational skills and gives examples of his leadership while in various difficult situations.

This author discovered an abundance of primary material in newspapers and science journals of the period. The New York Times, Chicago Tribune, and from Denver, The Rocky Mountain News printed Powell's and other member's letters verbatim with additional commentary. Not only did these word-for-word accounts constitute the sought out primary sources, but also in their discourse, freely spoke of various journals and diaries maintained on the expeditions. A search of various memoir collections yielded the personal accounts of the river voyages written by seven members: the Major--Walter Powell, A. H. Thompson, O. G. Howland, F. S. Dellenbaugh, Jack Sumner, and George Bradley. The journals of Major Powell, Powell's brother, Sumner, and Bradley are published in the Utah Historical Quarterly, Volumes XV & XVI, 1948-49. An annotated bibliography has been included herein to provide additional background on each of these characters.

These newspaper sources provided excellent accounts of the expeditions by printing letters from the men but do not provide journalist's comments on his leadership. However, the journals and diaries kept by those on the expedition do critique Powell's actions and leadership. Combined together, they provide important insights into his leadership.

The first series of secondary sources developed out of biographies written about Powell and several others accompanied him. These biographies were principally written in the early twentieth century using both original journals and personal interviews with the surviving participants of the expeditions.

The next secondary sources develops from the centennial period, circa 1969, and provides primarily historical citation and analysis of what the expeditions accomplished, and accompanied by the environmental agenda of the author. The final period, late 1970s until the present, provides either criticism of Powell's motivations and performance or defense of a much beloved hero. This final period closely parallels the current controversy of General Robert E. Lee. Here, military historians have become polarized on Lee's performance. In much the same manner, modern naturalists have two schools of thought on Powell's performance and motives. The value of these secondary sources is quite limited for this thesis because they really do not address his leadership and loosely follow the primary accounts of the expeditions.

Many have written about the significance of Powell's discoveries and the expedition's epic journey into the unknown. Primary material exists on Powell's two expeditions and on his scientific works on

ethnology, geology, and management of arid Western lands. Amazingly these subjects occurred over 125 years ago; yet no one, apparently, used these undertakings as a source to gain insights into Powell's leadership of the last great discovery in North America--the Colorado's canyon system. Many of those on the journeys kept diaries and later published works about their personal adventures. This was especially true of the second expedition.

Journal notes of the first expedition are limited as a result of losses suffered during the many mishaps on the river. A major blow came when Powell allowed many important notes to leave with the Howland party.⁸ The party was subsequently massacred by Indians, with all accompanying notes lost. Even portions of Powell's personal journal were lost during various mishaps along the way.

This author has uncovered a wealth of material to allow for extensive research and finally, for an analysis of Powell's leadership on these two expeditions. The various biographies of Powell's life will allow for examination of the influential factors bearing on his leadership traits. It will also facilitate speculation on what cultivates leadership in a military officer. Finally, while the literature really does not look at Powell's leadership, it does provide the situations which required action and direction from Powell. By having this necessary information to draw inferences from, a great deal can be learned by studying his life.

Methodology

Paul Leedy, author of Practical Research, pointed out mere happenstance is noxious to the facts of the past. By looking at events, historical research discovers an underlying matrix of logical cause and effect.⁹ The historical research method used for this undertaking seeks to provide a means to interpret Powell's leadership and to sift through what might seem only serendipity or luck. Therefore, the historical methodology of research design was used, because of its goal to discover the meaning of history.¹⁰

The sole character of this thesis is John Wesley Powell and his leadership through the second expedition of 1871. Powell was selected as a leader worthy of study for several reasons. First, he was a researchable small unit leader from the Civil War who later had cause to use his leadership skills. Next, Powell did things as an adventurer, philosopher, scientist, soldier, and statesman that capture nearly everyone's imagination. Thus, there is a natural inclination to learn more about the one-armed handicapped man who discovered the Grand Canyon in a rowboat. Finally, I personally identify with the man and with the virtues which guided his life.

The data for this thesis was collected entirely from written sources: books, transcripts, journals, reports, newspapers, and magazines in order of weight and preference. The researcher began with a background search through National Geographic magazines. A trip to the local library found a popular adolescent biography on John Wesley Powell by Marion Place. This book gives the reader a quick personal account on Powell's life and serves as a good starting point. A heavy

investment of time at the Combined Arms Research Library at Fort Leavenworth yielded a vast resource of material, both primary and secondary, under the subject file on the data base. Several primary references were located elsewhere and required coordination plus the goodwill of others to acquire them. These sources were critical to the reconstruction, as nearly as possible, of the contemporary scene of Powell's era. Without these references the faithfulness of secondary sources would certainly affect the project's analysis.

The researcher needs to divulge an error made in not conducting a computer search on related subjects. Two months later while hunting the shelves, the researcher discovered a book on the Grand Canyon written by Powell's friend George W. James, titled In and Around the Grand Canyon. An inquiry of the database for books on the Colorado River and the Grand Canyon yielded fifteen additional books. Next, databases external to the library were queried.

The American: History and Life database led to several journals that have reproduced primary material on the Powell expeditions. The Journal of Arizona History and Utah Historical Quarterly have diaries, journals, and letters by Powell and other party members. These sources also include scholarly articles on both expeditions plus Powell's later work with Western Indian tribes. Poole's Index provided listings of all the reports Powell rendered to Congress, such as the United States Geological Survey reports and the four reports Powell wrote about the expeditions. The Directory of Archives and Manuscripts located the "Grand Canyon Study Collection" and the "John Wesley Powell Memorial Museum." The former collection contains over ten thousand pages of

original material connected with the canyon's exploration. The latter contains twelve file drawers of material on Powell, but its lack of copying facilities was limiting. Akin to the last research avenue, the National Union Catalog of manuscripts detailed the locations of primary source material and provided addresses.

The last place researched was the New York Times during the period, to see if anything would surface. Dozens of pages were uncovered as this author discovered just how interested people were about this last great exploration in North America. The Times printed on its front page letters from Powell during the first expedition and erroneous articles about his expedition's demise.

My final subjective viewpoint of the literature is to consider only four secondary sources. A researcher using only Darrah, Lincoln, Stegner, and Watson's books will gain the best scholarly works on Powell's life. These sources, along with their superb recounting of Powell's experiences, provide the best citations and bibliographies to research most known primary material.

The primary assumption this author made is the four factors of leadership--the followers, the leader, the situation, and communications in these two expeditions are researchable from both primary and secondary sources. Secondly, a look at Powell's leadership experiences and background prior to the expeditions is plausible, given access to primary source material. Finally, primary source accounts of the expedition portray an accurate account of the events and Powell's leadership of the expeditions.

Definitions

One area of this study does require delineation, and yet words can hardly describe the setting--the Grand Canyon of the Colorado River. The Colorado is unlike any other great river in the world. It begins high on the slopes of the Colorado Rockies. This run, from its head at the Green River, to its mouth as the Colorado River, emptying into the Gulf of California, is almost two thousand miles. In its journey the river drops a good two and one-half miles. Beginning above fourteen thousand feet and dropping to two hundred forty-eight feet below sea level, the power of this mighty river combines with an arid climate and rising land to carve nineteen distinct canyon systems.¹¹ Powell vividly describes the Colorado River system works:

All winter long, on its mountain-crested rim, snow falls, filling the gorges, half burying the forests, and covering the crags and peaks with a mantle woven by the winds from the waves of the sea-- a mantle of snow. When the summer sun comes, this snow melts, and tumbles down the mountain-side in millions of cascades. Ten million cascading brooks unite to form ten thousand torrent creeks; ten thousand torrent creeks unite to form a hundred rivers beset with cataracts; a hundred roaring rivers unite to form the Colorado, which rolls a mad, turbid stream, into the Gulf of California.¹²

This great river, named by the Spaniards *Rio Colorado* or the "Red River," drains an enormous land area from its snowy mountain beginning to its desert mouth--an area of about three hundred thousand square miles. It is larger than a combination of all the New England and Middle States, with Maryland and Virginia added. Slicing through the rock layers in ever deepening narrow gorges, each named after its distinctive feature: Horseshoe Canyon; Flaming Gorge; Canyon of Desolation; Labyrinth Canyon; Cataract Canyon; Glen Canyon (Now Lake

Powell) and Marble Canyon; and the last, superior to all others, the Grand Canyon.¹³

No writer has ever sufficiently described the Grand Canyon, for its immensity is almost beyond comprehension. Frank Waters, author of The Colorado, characterized it as "the Rocky Mountains upside down;" a mountain chain as it were nearly three hundred miles long, eighteen miles wide, but a mile deep instead of a mile high.¹⁴ The Grand Canyon begins at the mouth of the Little Colorado River and ends at the Grand Wash. The first organized river exploration of the canyon began in 1857. Led by Lieutenant Ives of the United States Corps of Engineers, he attempted to take a steam-powered boat into the canyon's heart from the desert below. He finally abandoned the expedition after being driven back by the fierce and raging current. He wrote after many days of heroic efforts:

This region can be approached only from the South, and after entering it there is nothing to do but to leave. Ours has been the first, and will doubtless be the last party of whites to visit this profitless locality.¹⁵

In July 1869 Powell and his men finally reached the forbidding entrance to the Grand Canyon, where he wrote of the expedition's apprehension of what lies ahead, "An unknown river we have yet to explore. What falls there are, we know not; what rocks beset the channel, we know not. . . . The water is swift, the walls rise from the very edge of the river."¹⁶ Years later he would have a more vivid account first shared during the inaugural meeting of the National Geographic Society on February 17, 1888. Powell stated,

From above it is a chasm, from below a stairway from gloom to heaven. In the Grand Canyon there is a thousand gorges like that below the Niagara Falls, and there are a thousand Yosemites. Pluck

up the Blue Ridge Mountains and hurl them into the Grand Canyon and they will not fill it.¹⁷

Here ends this author's limited attempt to describe something that is beyond description. It is important to remember the situation during Powell's first expedition, when Indian and trapper legends provided the only limited knowledge of the area. The dark abyss lay before them. A final portrayal is presented by the naturalist John Muir, founder of the Sierra Club, who perhaps summed it up best:

The black depths of the canyon become one of the most sublime spectacles on the earth. All the beauties of form, color, and sound unite in the Grand Canyon. No matter how far you have wandered, how many famous gorges and valleys you have seen. This one will seem novel to you. As if you had found it after death on some other planet. This one, the Grand Canyon on the Colorado!¹⁸

Limit and Delimit

This author limited the scope of this thesis to control its length. The extensive history on John Wesley Powell, requires a topic selection with a narrow focus, in this case only Powell's life and leadership through the two expeditions in 1869 and 1871-72 down the Colorado River.

A necessary delimitation of the proposed study occurred, because of his leadership over a lifetime in government service. This will allow for a feasible research study by looking at Powell up through the second expedition. Secondly, this author will answer the research questions only in light of current leadership doctrine and theory, as well as ignoring the leadership principles in Powell's day. This is not to cast judgment on Powell's leadership but rather to facilitate analysis for the modern military leader. Finally, this study will not

look into the backgrounds and motivations of the other men involved in the two expeditions.

Strategy

The analysis techniques and analytic strategy involved the careful study of the United States Army's current leadership theories embodied by several doctrinal manuals. The Army's foundational leadership manual is FM 22-100, Military Leadership, last revised in July 1990. Although its primary focus appears to be small unit leaders the philosophy contained within is embedded throughout all echelons of the Army. While the concept of FM 22-103's, Leadership and Command at Senior Levels, is to provide leadership doctrine and techniques to those situations peculiar to higher-echelon leadership. This manual is important to an analysis of Powell's leadership for two reasons. Foremost, it dictates the features of a senior leader's vision and its relevance to accomplishing difficult missions. Moreover, it discusses the art necessary to influence and create the conditions, either directly or indirectly for sustained organizational success to achieve one's goals.¹⁹ The best way to view Army senior leadership tenants is to visualize them as pillars built upon the foundation laid by FM 22-100. Finally, FM 100-5, Operations, provides the overarching covering as the Army's basic manual on force projection doctrine and completes the Army's leadership doctrine.

A simple interpretation of leadership is wholly the process of influencing others to accomplish tasks they normally would not do. A leader provides his subordinates with the purpose, direction, and

motivation to complete the mission. By providing purpose, a leader furnishes the reason why followers should do difficult things under hazardous conditions. Direction indicates what must be done. Motivation gives subordinates the will to see the mission through to completion.²⁰ It is Powell's leadership: how he provided guidance, directed the expedition, and motivated his men, that provides the impetus for this thesis.

The qualitative nature of this thesis obliges the separate presentation of the findings and the results after the historical narration. The historical methodology and the accompanying qualitative strategy are entwined with both in the substance of John Wesley Powell's leadership and the leadership theories grounded in these issues.²¹ Thus it is desirable to reiterate and elaborate on a few important points.

The state of the literature concerning Powell is extensive in both volume and continuance.²² Nonetheless, almost nothing exists that intentionally looks at Powell's leadership of the two expeditions.²³ This is not to imply that the vast material, both primary and secondary, on Powell's life do not fill a critical place in the study of Powell's leadership. They do. They form the grist of the analytical mill.²⁴ In a real sense the ripened fruit of Powell's leadership qualities has hung on the branches of this literature awaiting harvest. This author has sauntered into a portion of that orchard and left with his bushel full.

The information and analysis of the thesis are intended to be useful and historically accurate, consisting of five chapters. Chapter one, "Introduction," provides the purpose, literature review, and methodology used to evaluate Powell's leadership during the two

expeditions. Chapter two discusses Powell's development as a military leader and public servant prior to the 1869 expedition. It covers the period from his youth through his service as a Union artillery officer during the American Civil War. Chapter three describes Powell's activities as the leader of the 1869 initial exploration of the Colorado River and Grand Canyon. Chapter four discusses his activities from the completion of the initial explorations through his assessment and preparation for the second expedition. The chapter concludes with a look at the second expedition until Powell's departure in 1872. Chapter five takes a critical look at the finding on Powell's leadership of the two expeditions and offers insights on Powell as a leader. Finally, a discussion begins with the relevance of his leadership to present military leaders and concludes with recommendations for further research.

No attempt was made to either credit or discredit any of the achievements by those on the expeditions, to include Powell. These expeditions seem to confirm the old adage of the whole being greater than the some of the parts.

Endnotes

¹Old Testament, Book of Judges 7:7-22.

²Old Testament, First Chronicles 11:15-19.

³Martin Blumenson, "Troop Command by Intuition" found in, Front & Center, ed. L. James Binder (AUSA book; Washington: Brassey's, Inc.), 67.

⁴Ibid., 68.

⁵Martin J. Anderson, "Artist in the Wilderness: F. Dellenbaugh's Grand Canyon Adventure" The Journal of Arizona History, 28, no. 1 (1987): 62-63.

⁶F. S. Dellenbaugh, Memorandum found in the Dellenbaugh Collection, NYPL and portions reprinted in Martin J. Anderson article "Artist in the Wilderness: F. Dellenbaugh's Grand Canyon Adventure." The Journal of Arizona History, 28, No. 1 (1987): 66.

⁷Elmo Scott Watson, The Professor Goes West (Evanston, IL: Illinois Wesleyan University Press, 1954), 28-29. An excellent source available at Illinois State University, few other books or articles cited it. It was truly rewarding to make the rediscovery.

⁸John Wesley Powell, Reports of Explorations in 1873 of The Colorado River of The West and Its Tributaries (Washington: Government Printing Office, 1874), 5.

⁹Paul D. Leedy, Practical Research (New York: Macmillan Publishing Company, 1989), 125.

¹⁰Leedy, 125-134.

¹¹Frank Waters, The Colorado (New York: J. J. Little and Ives Company, 1946), 3-13.

¹²John Wesley Powell, quoted in George Wharton James, In and Around the Grand Canyon (Cambridge: University Press, John Wilson and Son, 1900), 3.

¹³George Wharton James, In and Around the Grand Canyon (Cambridge: University Press, John Wilson and Son, 1900), 4.

¹⁴Frank Waters, The Colorado (New York: J. J. Little and Ives Company, 1946), 374.

¹⁵Lieutenant Joseph Ives, quoted in George Wharton James, In and Around the Grand Canyon (Cambridge: University Press, John Wilson and Son, 1900), 3. Interesting events happened on this expedition and his

report to Congress is perhaps the finest example of writing found in the Government files. Ives completed his report in 1861 in California; learning that war had broken out, he joined up with the Confederate Army and was killed during the war.

¹⁶John Wesley Powell, quoted in George Wharton James, In and Around the Grand Canyon, 30.

¹⁷John Wesley Powell, lecture to the National Geographic Society 17 February 1888, referenced in National Geographic Magazine, 173, (January 1888), 1-2.

¹⁸John Muir, Steep Trails (Boston: Houghton Mifflin Co., 1918), 347. Muir has an entire chapter dedicated to his experiences in the Grand Canyon, including the ordeal of just getting to where you can look down into the canyon.

¹⁹U.S. Army, FM 22-103, Leadership and Command at Senior Levels (Washington: Department of the Army, 1987), 3.

²⁰U.S. Army, FM 22-100, Military Leadership (Washington: Department of the Army, 1990), 2.

²¹Bruce L. Berg, Qualitative Research Methods for the Social Sciences (Boston: Allyn and Bacon, 1994), 227. A great aid for those writing for the first time at this level.

²²The author discovered several articles and a new book written on the first expedition in 1995. This demonstrates the continuing fascination with the Person of John Wesley Powell. However, these latest sources have Powell's military rank ranging from Colonel to Major.

²³A notable exception to this is a work done by Martin J. Anderson, (See "John Wesley Powell's Exploration of the Colorado River, Fact, Fiction, or Fantasy?) who constantly faults Powell's leadership. An example he would use is Powell writing in his journal account that the food was not too bad. He would quote some other member stating how poor the food was on the expedition. Anderson would then draw the conclusion Powell was a weak leader because he was always too optimistic and painted a false picture of reality. Other examples from Anderson clearly indicate a deficiency in knowledge of small unit leadership theory.

²⁴Paul D. Leedy, 127. Leedy's work is very helpful for the first time writer of a work of this scope.

CHAPTER TWO

POWELL'S DEVELOPMENT

Boyhood and Youth

On a beautiful March day in 1881, John Wesley Powell, known by untold thousands of Americans as simply "the Major," stepped forward to take charge of the United States Geological Survey, an agency destined to set the course for developing the nation's natural resources. One reporter covering the event wrote of him as "a pattern of the American self-made man, and well illustrates what may be accomplished with honest, steady adherence to a definite purpose."¹

John Wesley Powell was born on March 24, 1834, at Mount Morris, New York, and entered adulthood, as a first generation American with an intense devotion to God, country, and education. Born for the frontier and its exploration, he seized the closing years of America's western expansion and exploration. Few grasped the nation's switch from an agricultural base to a new age of technology and industry. Powell not only saw it coming, but also was ready when it arrived.

His parents (Joseph Powell, known for his indomitable courage and stern morality, and Mary Dean, for her gentle spirit and practical touch) shared his love of freedom and opportunity. Joseph was lured to America with his family of four in 1830 "to exercise his gifts in the Methodist Episcopal Church."² The Powell family settled initially in Palmyra, New York. This town was in a state of commotion over news that

the Church of the Latter Day Saints of Jesus Christ was planning to migrate to Ohio, to establish a sort of earthly kingdom. In 1827, Joseph Smith discovered two gold tablets at his farm in Palmyra. His subsequent miraculous translation of them resulted in what he called a "third testament," known as the *Book of Mormon*. This book had just been published, with five thousand copies released from Palmyra when the Powells arrived. Initially, Joseph Powell questioned if such a cult could flourish. After carefully studying commentaries and the Bible with his wife, Powell had his answer. The Lord had drawn the battle line; he had chosen the Powells to reach souls for Christ on the frontier, and thereupon thwart the enemy's false prophets.³

While the Powells prepared for the move West their first son, Fletcher, was born in 1832, only to die shortly thereafter. Grief stricken, the family continued on, settling for a short time in Mount Morris, New York, to establish a Methodist Church. While there, a second son was born, the principal character of this thesis. Joseph Powell, hoping his son would follow in his steps, named him John Wesley after the most famous sermonizer of England.

Mary Powell raised her children in the home schooling tradition established by Susanna Wesley, wife of John Wesley, because of the frequent moves required during the days of circuit riders.⁴ A gifted teacher, she soon captured young Wes' (as he was known then) attention and investigating tendencies by way of the Good Book. At the age of five, to his parents' pleasure, he could quote from memory the four Gospels of Matthew, Mark, Luke, and John--a considerable

accomplishment.⁵ Wes quickly learned and internalized John Wesley's well-known adage:

Do all the good you can,
By all the means you can,
In all the ways you can,
In all the places you can,
At all the times you can,
To all the people you can,
As long as ever you can.⁶

When Wes was seven, the family moved to the small midwestern city of Jackson, Ohio. During this period Joseph Powell's focus switched from anti-Mormonism to antislavery.⁷ It was in Jackson that young Wes received his first book, titled *Why the Negro Should be Free*, from a new family friend named Mr. George Crookham.⁸ The book, accompanied by numerous sermons by his father, and the opportunity to listen in on fireside debates on the evils of slavery formed in Wes a deep abhorrence for slavery. His strong feelings on the subject would continue to have a profound influence throughout his life.

This area of Ohio had many citizens who originally emigrated from Virginia and other slave states, therefore antislavery rhetoric was extremely unpopular. The Powell family spent eight turbulent years in Jackson enduring hardships and persecution for their abolitionist stance. However, they left Ohio bound for Wisconsin with a new-found confidence because God had richly blessed their stay; Joseph Powell left Jackson with eight children and a doubling of his personal wealth by way of land sales. Both of these blessings would become invaluable in Joseph's quest to purchase a large farm in Wisconsin, necessary to support his full-time ministry.⁹

Young Wes, although only twelve, was deeply impressed by his father's character. Joseph Powell had stood by his principles and courageously faced personal danger.¹⁰ Two other men Mr. George Crookham and Dr. William Mather would gain the honor of shaping Wes' mind in the sciences. Wes was forced to give up attending school for a time in Jackson. He received bullying and threats almost daily from young men at the school because he was the son of the abolitionist preacher.

Mr. George Crookham, an elderly scholar of some means, an abolitionist active in the underground railroad and a frequent visitor to the Powell household, quickly noticed the talent Wes possessed.¹¹ One day he approached Joseph with an intriguing idea to aid the Powells with Wes' education: "Great Britain [Mr. Crookham always referred to him as such because of his heavy British accent], I will take the boy and make a scholar of him."¹² The Powells did not hesitate and granted guardianship of Wes to Crookham for the next six months. Wes enjoyed the numerous field expeditions with Mr. Crookham and other scientists as they studied the natural sciences. Returning home to his family as the danger of persecution subsided somewhat, Wes continued learning from the benevolent Crookham. The youth impressed by not only the depth of his knowledge, but also, that so important a man would invest his precious time on a young boy. Powell would follow the same pattern decades later as his personal fame grew. He always availed himself to others, not in a subordinate relationship, but simply as the senior companion. Crookham, for his part, considered Wes as his young protégé and knew he invested in the genius the elder Powell failed to discover.¹³

One day Crookham ran up the path to the Powell home and burst through the front door, shouting for "Great Britain" as he placed his immense frame down on a kitchen chair next to Wes. Joseph ran in the house to find the red-faced Crookham attempting to regain his breath and composure. He was not successful as he addressed Powell, "What do you think they've done?" he puffed. "They've burned down my school!" The hoodlums, prochoice antiabolitionists, had burned over fifty years of Crookham's work and most of his books.¹⁴

This proved fortunate for Wes as George Crookham dismissed all of his adult students to focus his next four years entirely on the youth. An opportunity for a frontier boy like Powell to receive private tutoring was rare, especially in a region known for its scarcity of books. Even Abraham Lincoln was known to comment on this type of western pioneer education. He said of it, "The things I want to know are in books; my best friend is a man who'll git [sic] me a book I ain't read."¹⁵ Part of Wes' education came from the frequent visits of leading scientists to the Powell home in Crookham's company. None was as significant as Dr. William Mather. Dr. Mather at this time was serving as the first state geologist of Ohio and often called on Mr. Crookham for his wise advice.

Mather was a gentle and humble man who was known for his physical endurance and leadership that was easily traced to his earlier career as an Army officer. His final assignment with the Army ended in 1836 at West Point, where he served as chief artillery instructor and assistant professor of geology. After leaving the military to pursue further scientific explorations of the West, he served under the

leadership of Increase Lapham, the first state geologist of Wisconsin. Together they completed the first extensive survey of Wisconsin.¹⁶

Mather took interest in Wes from the first time they met. He frequently included Crookham and the young Powell on his geological excursions throughout Ohio.¹⁷ The old soldier loved to share his experiences in the military and his fondness for the king of battle, artillery. These youthful experiences and contacts greatly influenced the path Powell would later choose for his life.¹⁸

In 1846, Joseph received his ordination into the newly formed Wesleyan Methodist church. This denomination sprang from the Methodist Episcopal church because of the Methodists' weak stance on the issues of slavery and the drinking of alcohol. Shortly thereafter, Powell received assignment to Wisconsin to reach the people with the gospel. That summer the family packed two wagons and moved west to establish a frontier farm in Walworth County, Wisconsin, southwest of Milwaukee.¹⁹ Joseph's long-held dream of establishing a farm capable of supporting both his family and ministry was becoming reality.

The youthful Wes (at the time only twelve) was about to embark on his final years in the Powell household. His life in Wisconsin, six years in all, helped build his character as he assumed full responsibility for the family farm. John later wrote with some sharpness about his father lacking any knowledge of farming, not working at the farm, or taking any part in its management.²⁰ Though Wes did not particularly enjoy farming, his faithful service freed Joseph after only one season for full-time ministry. Wes' responsibilities covered the entire spectrum of farming including planting, harvesting, and

marketing. Long trips, several made each year, added the responsibility of selling crops and purchasing all items needed by the family. The distant markets on Lake Michigan, a six-day journey, allowed Wes the opportunity to continue reading as the oxen slowly moved down the road.

His successful management of the family farm, widely known, demonstrated initiative and an early ability to accept responsibility. Wes, at fourteen, received stewardship of the family's purse. This additional obligation from his father kept Wes from straying into trouble or indulging in the pleasures associated with city life. The more frequent trips to distant markets, fifteen per year, helped to establish Wes' reading pattern of only investing time in nonfiction works. By far his most favorite book and constant companion was Bunyan's book Pilgrim's Progress. Powell did not consider this book a work of fiction.²¹

Perhaps the only exciting story during the Wisconsin years occurred in May 1847. The Powell family awoke to find a large band of Winnebago Indians camped on their farm. They looked downhearted with very few provisions accompanied by weary horses burdened with packs. Wide-eyed with excitement, Wes carefully observed the band from a safe distance, even though they seemingly posed no threat. The Powells learned of the Winnebagos invitation to Milwaukee. They traveled there to receive reimbursement for the very same land the Powells and other settlers had earlier purchased from the government. The Indians returned a week later with their first installment of blankets, clothing, and shoes. They stayed several weeks hunting and fishing by day and dancing by night in a festive farewell to their grounds. This

gave Wes a chance to learn firsthand about the American Indians. He found the Winnebago Indians as a peaceful and simple people, now bereft of land. This experience developed in Powell a great interest in the American Indians and eventually led to the first serious study of their culture in 1879, when Powell became the first director of the Bureau of Ethnology.²²

Wes left home at the age of sixteen, to pursue an education at Janseville, Wisconsin, in the fall of 1850. He earned his way by working at various farms for room and board. This enabled him to quickly make up his deficiencies in arithmetic and writing. In the fall of 1851, Wes returned home to answer his father's call to help move the family to Bonus Prairie, Illinois. Wes' father solicited his assistance in establishing the new farm in return for a college education in theology. After a year of hard work, both in the field and at night studying geography, arithmetic, and grammar, Powell set out for good to teach in Wisconsin, refusing to accept tuition in a field he felt no calling for. He walked the thirty miles in the middle of the winter to secure his first teaching position and certification.²³ Wes' move thus ended a rather fascinating period of his life. A time in which Wes was exposed to an atmosphere of educational, political, religious, and social fire that forged this future explorer.²⁴

During his college years Powell attended Illinois, Jacksonville, Oberlin, and Wheaton colleges. During those years, he established one of the most complete collections of Midwestern botany, zoology, and mineralogy specimens assembled up to that time. He soon thereafter announced his intention of devoting his life to the greater

science of biology.²⁵ Powell's father was pleased by the move to attend Oberlin College because of its leadership in Western education and its strong Christian tradition. Joseph figured if his son was not going to pursue the ministry as he had vainly hoped, at least the younger Powell would preserve his Christian upbringing. He failed to return after only one year, feigning financial hardship, in reality he had found the curriculum unchallenging.²⁶

His reputation as a teacher and naturalist earned him a lucrative position as teacher and eventually principal in Hennepin, Illinois. His salary in 1858 was one hundred dollars a month, which provided the funding necessary for his summer research trips. His intention was to teach for two years and travel to some Eastern college to complete his undergraduate degree in botany.²⁷ In 1860, his life would change forever. His lecture tour of the Southern States that year allowed his firsthand observation of Southern sentiment towards slavery and the burden born by the slaves. Convinced that war over slavery was inevitable, he dedicated the next year of his life to the study of military tactics and engineering. He decided to pursue studying the latter because of his strong background in topography and mapping. All of these efforts were in anticipation of his future role to combat the evils he associated with slavery.

His emphasis throughout the coming months was dedicated heavily towards military bridging and fortifications. John was certain the war would take an offensive course for the North, and this would require the crossing of various Southern rivers and assaults of fortified positions. Powell's favorite choices on these subjects were Dennis H. Mahan's books

on military tactics and engineering and Sebastien Vauban's treatise on fortifications.²⁸

On Sunday afternoon, April 14, 1861, the quiet town of Hennepin was stunned by the news from Fort Sumter. The great war against Southern rebellion had begun. John wrote to his brother Bram to hurry to Hennepin without delay. The next day the Nation's newest President, Lincoln called for volunteers and the local courthouse opened to receive them.

The Civil War Years

When the call came in the early part of 1861, Powell was the first man in the 20th Illinois Volunteer Regiment to enlist. John Wesley Powell was sworn in and listed as private, Company H. Easily passing the rudimentary physical examination, the medical clerk's record book described Powell as, "Age 27, height 5' 6-1/2" tall, light complected, gray eyes, auburn hair, occupation--teacher."²⁹ Powell, in spite of his wiry build of 120 pounds, was known throughout his life to be a man of great strength. John Wesley Powell walked out of the courthouse as a private, but would not remain a junior enlisted man for long. Before the week's end his fellow comrades, many of whom Powell had recruited, elected him as their sergeant major. His previous education, in terms of both civilian and military studies, directly contributed to his advancement. The regiment quickly prepared itself for deployment from Joliet, Illinois, under the able hand of Colonel C. Carroll Marsh. His deliberate and demanding training periods soon exposed the weaker officers who came one by one to Marsh with their resignations. Powell spent only one month as an enlisted soldier.

Since the resignation of his company commander left the unit without any officers, Powell, as the most promising mentor, was offered a second lieutenant's commission on June 13, 1861. The "Twentieth" was officially mustered into the Union Army and ordered to Alton, Illinois with Powell in command of an infantry company.³⁰

Lieutenant Powell found himself without uniform or the proper manuals to drill an infantry company, so he approached Colonel Marsh with the suggestion he visit Chicago to purchase the items. Powell's initiative impressed Marsh who quickly granted a three-day pass. Powell hastily purchased the drill manuals and was fitted for an officer's uniform. This allowed him to spend the remaining hours of the furlough with Emma Dean, his Michigan sweetheart.³¹

Powell utilized the newly acquired infantry drill manuals (author was unable to discern the manuals' authors, but they most likely were Hardee and Casey) to drill the men in the latest movements of battle. Finally, the men received word on July 6, of their activation and planned move down the Mississippi River to the small town of Cape Girardeau, an important community overlooking the river. On July 10, the Twentieth Illinois Infantry arrived at the river front community. Powell's move to Missouri, permitted him to use his developing engineering skills. Though Colonel Marsh did not feel there was a military requirement to prepare defensive positions at Cape Girardeau, he approved of Powell's efforts as a means to break the boredom of camp life. The Lieutenant's initiative in studying military engineering proved invaluable to General John C. Fremont. On arrival Powell occupied his time mapping the area, indicating those approaches

vulnerable to attack and designing tentative defensive works. The senior officers saw no need for such defensive preparations and temporarily disapproved execution of his plan. This all changed when in early August General Fremont arrived to inspect the situation at Cape Girardeau and was dismayed to find no defensive works. Colonel Marsh was in trouble for his poor judgment with his commander but recalled the young officer who had earlier developed a plan. Marsh sent for Lieutenant Powell who gave a detailed briefing of his plans to the General Fremont. Powell received an unqualified commendation from Fremont, was detached from his regiment, and tasked to fortify all Cape Girardeau and to prepare defensive positions.³²

For the remainder of the summer and into the fall, John devoted all his energy and effort to the construction of four triangular forts. Each of these positions required six heavy guns that provided interlocking fires of all the vulnerable approaches to the city. Two of the forts guarded the land approaches and two guarded river approaches. Each was connected by a series of earthworks and parapets.³³ These forts incorporated all of the latest innovations with each position providing interlocking fires and support. More importantly, this work demonstrated how Powell, with no formal military education, could transfer the theory of books into reality on the ground.

During this period Powell had several thousand civilians and soldiers under his control, engaged in digging and construction. Giving Powell his first experience with large-unit organization and leadership. General Fremont also detailed Powell on several small expeditions at Price's Landing, Hamburg, and the unsuccessful relief of the Union

positions at Lexington, Missouri. In each of these he served in a reconnaissance role, traveling ahead of the main body and reporting back to the regimental commander on the preferred routes best using the terrain. In such manner Lieutenant Powell slowly became a seasoned soldier. On August 28, life began to change as Brigadier General Ulysses S. Grant took command of the troops assigned to southeastern Missouri. In only a single month Grant had everyone anticipating a move to the offense in contrast to the cautious defensive nature of Fremont's generalship.

This change to an offensive philosophy meant the detailed defenses Powell had intended would never be finished as he saw his work force dwindle each day. Still, Powell's requests to return to the Twentieth Infantry Regiment met with repeated disapproval. Never one to sit idly by, with General Fremont's unauthorized blessing, he formed a provisional battery out of local Missourians who had a like interest in artillery. Several weeks passed as his forty volunteers trained in artillery drill by day and bowled by night.³⁴ September 17's mail contained orders from Grant assigning Powell to take charge of the completed Fort "B" and its six mounted twenty-four-pounders. On October 8, 1861, John became acting captain of artillery, in charge of an unrecognized battery without field pieces. So Powell found himself in a confusing situation, serving as both a fort commander and light artillery battery commander.

General Grant came to Cape Girardeau in mid-November to inspect the progress of the fortifications with Lieutenant Powell assigned as his escort. Together they spent the next three hours touring the area.

Powell took the General to each critical area and described how the four principle positions mutually supported each other on the threatened approaches. Lieutenant Powell's initiative and grasp of warfare impressed Grant who invited the young lieutenant to dine on the general's boat. After dinner they were smoking cigars, when Powell boldly asked a personal favor of Grant. He desired to have one week of leave to marry Emma Dean in Detroit. Hesitating only a minute, Grant approved the request in appreciation for Powell's past initiative.

John sent a telegraph to Emma telling her to prepare for the wedding on November 28, in Detroit, Michigan. Powell arrived late in the afternoon and after a hasty supper with the Deans, the minister arrived for the simple home wedding. Reverend John H. Griffiths, pastor of the local First Baptist Church, conducted the marriage. The newlyweds headed straight for the train station and after a tearful farewell, boarded the train for John's family home in Wheaton, Illinois. They visited only a few hours with the Powells and then were off again to rejoin John's unit. Emma, after waiting five years, was finally going to join her Wes on his adventures as the Powells returned to camp.³⁵

Lieutenant Powell had sent a letter to General Grant requesting immediate reassignment to his original company command in the "Twentieth" and was sure Grant would approve it. He returned to find the Regiment had left to join the war, and Powell feared he would remain to complete the construction of the fortifications at Camp Girardeau, Missouri.³⁶ Lieutenant Powell's spirit soared when he recognized General Grant's flag at one of the Forts. Grant indeed had just arrived

to see Powell and handed Powell a commission as captain of artillery. Grant had written Governor Yates of Illinois informing him of Powell's fine efforts with the volunteer Missouri soldiers and that with only a few additional troops from Illinois the battery would be organized immediately. Grant, with his offensive strategy saw a need for reorganizing the defensive siege batteries. He felt Powell's unit would make the perfect initial trial of his new theory on light artillery and sent the following letter on December 2, to the Secretary of War:

There seems to have been no provision made in the acts of Congress organizing our soldier system for manning our siege batteries other than to take companies authorized as light artillery companies. All these manifest a great desire to get their batteries and do not like to remain in fortifications. In view of these facts I authorized Lt. Powell, as acting engineer on the works at Cape Girardeau, to raise a siege company out of the Missouri Home Guards that were on duty there.³⁷

The General had spoken, and Powell, who since his years with Doctor Mather developed a deep love for the cannons, gladly accepted the commission. Battery F, 2d Illinois Artillery, numbered 132 men and mustered at full strength. Powell's new command was composed of loyal Missourians and a few dozen Illinois soldiers. The recruits from Illinois also brought a gift from the citizens of their state; ten six-pounder smooth bores complete with all the necessary equipment and caissons.

Over the next four months Powell continually drilled his battery for every conceivable situation. He was known as strict and almost unreasonable disciplinarian, even by his own account. Yet he was determined to see no man under his command would fall as a result of poor training or leadership. The winter broke, and with spring came abundant supplies down the river. Powell knew General Grant would soon

move against the rebels. John ordered the training increased to twelve hours each day, with the focus on the sequenced tasks of quickly employing the battery and engaging the enemy. This demonstrated Powell's professional commitment to his chain of command and soldiers to use the time provided to field the best battery possible.

Finally, after three months of preparation, rumors began to circulate of a forthcoming battle. The Battery, was ordered to Pittsburg Landing, Tennessee, and arrived there on March 11, 1862. Captain Powell ordered the battery to the bluffs overlooking the landing and watched with pride as the 156 soldiers, accompanied by their newest lieutenant--John's brother Walter, quickly positioned their six six-pounders. Over the coming weeks he carefully eyed the countryside and noted the key road to Corinth and the frequent fruit orchards surrounding the road. Powell was appalled by the lack of defensive preparations exhibited by the brigades in the field. He observed none of the earthworks or abatis to guard front-line positions, as his tactics books had required, in spite of daily reports indicating Confederate pickets were in the area. Powell sensed something was afoot and had Emma stay at Grant's headquarters in Savannah, a safe eight miles downstream.

Powell, like most of Grant's officers, patiently waited for the additional Union forces to arrive in the area. Almost nightly, up through the first week of April, John had the opportunity to visit Emma, traveling as the guest of General Grant aboard the *Tigress*. Both would return early the following morning to continue preparing for action. On Saturday morning, April 5, Brigadier General Benjamin Prentiss,

commander of Sixth Division, Army of the Tennessee, decided to conduct a division-size full-dress review in the rolling fields around the country meeting house known as Shiloh Church. After the review numerous reports came to his attention of dozens of "butternuts" lying in the brush watching the parade. Prentiss' response was to post a few additional pickets. Around 8:30 p.m. further reports came in of distant fires by the hundreds and faint bugle calls, but Prentiss failed to send the reports to Grant. Powell knew nothing of this development.

But already General Albert Sidney Johnston had set his Confederate forces on the march towards Shiloh Church. He realized that his only hope to defeat the gathering Union Armies was to attack Grant's Army of the Tennessee, before Buell's Army of the Ohio with 25,000 additional soldiers could close on Pittsburg Landing. The Confederate attack came at six o'clock on Sunday morning, April 6, 1862, as the Yankees were beginning breakfast. The Confederates attacked three corps deep, emerging from the woods with a collective "Rebel Yell." A Union officer galloped passed Powell's camp shouting, "The Rebs are out there out there thicker than fleas on a dog's back!"³⁸

As Powell's breakfast detail completed preparing the morning meal, a long roll ruffled through the warm morning air, moments later the sound repeated itself, this time accompanied by distant bugles and drums. Suddenly, the roar of perhaps a hundred cannons dispelled all doubt--a major Rebel attack was underway. Powell quickly ordered the men into action for deployment for battle. His soldiers prepared like a finely tuned machine, harnessing the horses and limbering the guns with the efficiency of a well-trained unit--a testimony of Powell's

leadership. Powell galloped away to seek orders, but found only chaos. He returned to find Battery "F" fully prepared to fight and awaiting his orders. By 8:30 a.m. Powell still had not received orders. This was not surprising as Grant's army struggled to stave off defeat and amidst the confusion Powell's battery was overlooked.

It was clear from his vantage, high on the bluffs, the fighting seemed to center on the orchards in the center of the Union line, held by Brigadier General Prentiss' Sixth. Captain Powell grew angry as it was plain to see the battle was not going well for the Union side. Once more he rode about attempting to find someone in authority to assign his battery. Finally, exercising his own initiative, he committed "F" Battery to the battle. Because of Powell's previous initiative to reconnoiter the area he was familiar practically every acre, even beyond the ground now held by the Confederates. This allowed him to quickly lead the men to the beleaguered positions held by Prentiss' men. First he would have to pass through Brigadier General William H. L. Wallace's Second Division that was hastily forming a battle line across the Eastern Corinth Road. Powell galloped up to the lead brigade, commanded by Colonel Thomas W. Sweeny, and told him of his intention to aid the Sixth Division. Sweeny ordered his men aside, as Powell raised his saber to signal the battery forward. They galloped forward with Sweeny's boys cheering them on, towards the sound of the guns. Powell could see the long Federal skirmish line ahead with bayonets glistening in the morning sun, as he closed on Duncan's Field. He immediately located Generals William Wallace and Benjamin Prentiss and reported for duty. As a direct benefit of the many hours of drill and rehearsal,

Powell's battery had just covered over one-half mile with all equipment in less than six minutes. Powell checked his watch; it was now twelve minutes past nine. Captain Powell had acted too aggressive by placing his battery in a tenuous position with the Federal skirmishers.

General Prentiss rode forward to recall the battery and personally posted Powell's battery in a stronger position on the right of the Corinth Road intersection. This position in the Peach Orchard overwatched the Sunken Road and the open field to the South. Grant, making a hasty survey of the front lines, rode up to Powell's position. He was pleased by the battery's disposition and after complimenting Powell, ordered General Prentiss to hold "at all hazards" the critical position.³⁹ Grant correctly concluded that delaying the Confederate attack here, would provide time for the remainder of his army to deploy in depth to their rear. Shortly after ten o'clock Confederate General Leonidas Polk's division began the assault on Prentiss and Powell's men.

Prentiss appealed for reinforcements to bolster his position, and Colonel J.G. Geddes arrived from Wallace's Second Division, with his Eighth Iowa Regiment. Powell was ordered in front of the infantry positions with instructions to hold to the last. Powell signaled for concentrated volley, after volley on the advancing line of Confederates. First at six hundred yards, then five, and finally three hundred-yard arcs. Suddenly General Johnston realized the strategic importance of the road intersection and overwatching Peach Orchard. He ordered General Pierre G. T. Beauregard to commit the Confederate Army's reserves, Consisting of Brigadier General John C. Breckinridge Corps,

forward to concentrate on eliminating what they now called the "Hornet's Nest."

The losses within Prentiss' Sixth Division were staggering, represented by the loss of seventy percent of the brigade and regimental leadership who fought from the Hornet's Nest.⁴⁰ Everything was in confusion as the Rebels ripped at the Hornet's Nest with Sixty-two cannons as General Beauregard synchronized the Confederate attack of the Federal position with Brigadier General Braxton Bragg and Breckinridge's Corps. The artillery fire had its desired effect as nearly one-third of Prentiss' men lay dead or wounded, to include Colonels Sweeny, Geddes, Allen, Chambers, McArthur, and Moore; Colonel Everett Peabody lay dead with his men.

Around two-thirty in the afternoon General Johnston sensed the time was right. He rode to the front of Breckinridge's lead brigade and called for them to follow in a final assault of the Hornet Nest. Powell and his artillery were ready and waiting as Johnston led Breckinridge's brigade across the open field on the south side of the Sunken Road. Powell ordered his cannons to fire over the remnants of the Eighth Iowa. The shells struck with devastating effect, along with rifle fire from Colonel James L. Geddes' Eighth Iowa regiment as Johnston fell to the ground mortally wounded. The broken skirmish line quickly fell back dragging their failing commander with them. Over the next hour and a half, the enemy regrouped and Brigadier General Beauregard assumed overall command from the rear and Brigadier General Braxton Bragg served as senior commander on the scene. The assault began once more. This time with overwhelming strength, the Rebels would not be denied. A runner

reported to Prentiss that all direct contact with the rear was lost, and only by infiltrating could one make it to the rear. Prentiss was determined to hold to the last.

Shortly after four o'clock in the after noon Captain Powell was severely wounded forcing him to retire from the battle. He had raised his right arm with saber in hand to signal "Fire" once again, but this time a half-spent minie-ball smashed into his wrist, and traveled down the arm, and buried itself in his forearm. Powell slowly sunk to the ground as he grasped his shaking fingers. Walter quickly moved to his brother's side to find blood squirting out on the ground from the severed main artery. He quickly applied a tourniquet to the bad wound. Powell struggled to his feet on told his men, "A couple of bones are smashed, for God's sake, man the guns."⁴¹

General Wallace rode over to see why the cannons had fallen silent. He ordered Walter Powell to take charge, then turned to Captain Powell, stating "We are almost surrounded and I shall be captured with my men. You may still have time to escape. Take my horse and ride to the Landing. Hospital boats are there to care for you."⁴² The General jumped from his horse and, demonstrating his reputation of great strength, whisked Powell from the ground and placed him on his horse. John was heart sick and fearful his men would soon be captured. He thanked Wallace, said farewell to his men, and rode off. Moments later the final Confederate assault of the Hornet's nest would leave General Wallace mortally wounded and General Prentiss left to surrender what remained of the surrounded Federal Division.⁴³ By five-thirty in the afternoon Grant, with the time purchased by the men of the Hornet's

Nest, was able to patch together a defensive line bristling with artillery. Aided by the gun boats *Lexington* and *Tyler*, the final Rebel assault was thrown back at dusk.⁴⁴

Powell demonstrated many positive leadership traits during the Battle of Shiloh. Some mannerisms were merely manifestations of his youth, while others unfurled for the first time on the battlefield. Powell had exhibited a strong and honorable character. He established a reputation of commitment to selfless service for the nation, mission, and his men. He also knew the capabilities of his men and himself, demonstrating how to achieve the best from both. Finally, as he always strove to achieve, he had led his men as a professional artillery officer, in a time when he was a volunteer amateur himself. His tactical and technical knowledge, combined with unsurpassed initiative allowed his soldiers to gain the valuable time Grant needed to establish the defense. He knew the importance of his mission to halt the Confederate attack and not fail General Grant's directive to hold "at all hazards."

The situation at the Pittsburg Landing was chaotic when Powell arrived. Thousands of frightened and wounded men crowded along the river's edge. Powell vaguely remembered someone taking him from Wallace's horse and carrying him up a gangplank onto a waiting Illinois boat. Doctor William H. Medcalfe, quickly inspected the arm and removed the tourniquet, blood began to foam out of the deep furrow bored by the ball.⁴⁵ This indicated a serious wound which demanded immediate surgery. The trip that he had made dozens of times in past to visit his wife seemed to take hours. Finally the boat reached the docks of

Savannah. Two soldiers came in, placed him on a litter, and he was hastily rushed ashore. There on the dock waited Emma, with tears running down her face; how she had known remains a mystery. Wes looked up from his stretcher and tried in vain to reassure her. "Now, now," he softly said, "everything is going to be all right." Emma ran along side, carrying his prized artillery officer's hat, into the makeshift hospital of the converted township hall. Powell was placed in a room marked for "Extremities Only." Wes joked with his wife about the crude triage system, "They're classifying us into varieties."⁴⁶

Powell lay in a semi-conscience state all day Monday as the arm continued to bleed and began to swell. Dr. Medcalfe tried to remove the ball several times but there was no hope. Powell had run out of options. Tuesday morning, April 8, Medcalfe prepared to amputate his arm.⁴⁷ Powell would only accept a small amount of chloroform and watched as Medcalfe grimly conducted the surgery. Powell quickly recovered from the initial shock of the surgery and the following morning was visited by his men. Lieutenant Joseph Mitchell, told Powell about General Wallace's death and the capture of General Prentiss with two thousand of his men. He shared how Prentiss sensing the end, ordered "F" Battery to infiltrate back to protect the Landing. They had made it back to the Landing at five o'clock in the afternoon, losing only four killed and six wounded, but they had lost over two dozen horses. Captain Powell was indeed grateful for the report. More importantly the battery continued to function in Powell's absences without losing any of its cannon pieces.

He was eager to return to duty, and Mrs. Powell patiently nursed him to health, though all the time she silently prayed he would resign.⁴⁸ At the time Powell felt his return hinged on Emma accompanying him for the rest of the war. He had her write a simple letter for him to General Grant, requesting the personal favor to allow his continued service. In only a few days a courier arrived with a dispatch from Grant, and "a perpetual pass to permit Mrs. Emma Dean Powell to enter and leave all military lines without further authority."⁴⁹ This demonstrated a certain frailty in Powell's leadership at the time caused by his despair over losing his right arm. After the Vicksburg campaign Powell regained confidence in his ability to lead in defiance of his handicap. Correspondingly, Emma would not accompany Powell after July 1863, but remain in the rear of the Federal Army Powell was serving.

Major Powell was crippled for life, but after Vicksburg, he never let it get the best of him. It was typical of Powell to make the best of any misfortune in his life. An example came a few years later, when he developed a relationship with a Southern officer named Colonel Charles E. Hooker. In the same battle of Shiloh, he lost his left arm during the closing assault of the Hornet's Nest. After the war, the two former enemies met and the warriors became friends. Each time either Powell or Hooker, now a member of Congress from Mississippi, purchased a pair of gloves he would mail the unnecessary one to the enemy; the two veterans ever after remained close.⁵⁰

On June 30, Powell returned to Corinth and his Battery. The senior command appreciated his return, but knew he needed further

recuperation. Powell's men were ecstatic to see Powell and his wife return as the command just did not seem the same without both of them. A round of three cheers for their commander brought tears to Powell's eyes. However Powell, who was thin to begin with, looked completely haggard from his convalescence. Powell wisely accepted the temporary assignment to recruiting duty in his home state. During the following six months Powell applied himself to his new duties that involved travels between the cities of Chicago, Springfield, and Bloomington. Almost daily the stump of the arm brought unbearable pain to the slightest disturbance. Powell was certain that with some more time the pain would pass or he would become used to the discomfort.

In early February 1863, Powell orders recalling him to Lake Providence, Louisiana. Grant was busy there assembling the forces of the VIII Corps under the command of Major General John A. McClernand and the XVII Corps under the command of Major General James B. McPherson for a move against Vicksburg, Mississippi. Powell's battery was assigned to support Brigadier General John McArthur's Sixth Division of McPherson's XVII Corps. Captain Powell arrived on February 14, 1863, to find his headquarters located in elegant mansion. During the following months he drilled his battery with their new twelve-pounders on the once beautiful lawns of the estate. On April 26, Grant ordered the march to begin towards Vicksburg.

After six weeks of unmerciful work they finally reached the Mississippi River at Hard Times Landing. The march required the artillery batteries of the Corps to construct mile after mile of corduroy road to pass the cannons and caissons through the knee deep

mud. After ferrying across the river, the lead regiments assaulted Bruinsburg and Grand Gulf, defeating the small Confederate garrisons there. Defeat of these Confederate forces allowed the remainder of Grant's command, including Powell's battery, to cross at Perkin's Landing directly across from Grand Gulf. Grant then issued his famous order for the twenty-six thousand man force already gathered in Grand Gulf to abandon their supply lines and move into the Confederate interior. The Commissary General issued five days' rations and Grant's men began the march towards Vicksburg. By this audacious move Grant risked all abandoning a secure line of communications and moving between two major Confederate field forces in an effort to defeat each in detail.

More important than the capture of Mississippi's capital - Jackson was the elimination of forces under the command of Lieutenant General Joseph E. Johnston. Defeating Johnston secured Grant's rear and isolated Lieutenant General John C. Pemberton forces in Vicksburg. Position after position fell as Grant moved quickly to seize the capital of Mississippi-Jackson. During the Union advance through Rocky Springs, Utica, and Raymond, Confederate Generals Johnston and Pemberton both sent cavalry units in wide sweeping attacks on Grant's trains. They returned without making contact. Both Generals had yet to figure out Grant's scheme and ordered the raids to continue on the illusive trains. Major General William T. Sherman's lead divisions captured Jackson. Grant's men arrived several days earlier than thought possible for a Union field army on the march. It was now self-evident that Grant's strategy was to forage off the Mississippi countryside and had left his

trains behind. Pemberton was now forced to do likewise, as he fell hastily back to a blocking position at Champion's Hill on the main approach leading from Jackson to Vicksburg. On May 16, after a stiff fight the Rebels withdrew to their final positions along the swollen Big Black River. Here General Johnston order the bridges across the river dropped which he was positive would allow the orderly evacuation of Pemberton's Army in Vicksburg.

Powell's initiative and self-educated grasp of military engineering were instrumental in the Federal success at the Big Black. During each battle Powell and the Sixth Division had followed at the very rear of the Corps. Each day they arrived to find the area littered with the corpses of the Southern dead. During the Battle at Champion's Hill on May 16, Powell followed closely behind Second Brigade as it marched at the double-time towards the sounds of the cannonading and musketry, but they arrived just as the Confederates abandoned their positions. The next day, Grant ordered McClernand and McPherson's Corps to attack on line to force the crossing of the Big Black River. The XVII Corps arrived around two o'clock in the afternoon to find the only bridge in the area ablaze and crumbling into the murky water. Two volunteers approached McPherson with the idea of attempting to ford the river on foot. He consented and watched as they started across, suddenly the soft mud under their feet stopped their progress and slowly they sank to the soft bottom and drowned. Frustration began to set in as McPherson knew he had to quickly cross at this open flank and envelope the enemy's positions on the western side of the river. Then General McPherson recalled Grant's recommendation of Captain Powell if

he ever found himself in an engineering difficulty. General McPherson sent for Powell and ordered him to construct two bridges across the stream.

Powell's quick efforts allowed the XVII Corps to cross the Big Black the following morning and forced the withdraw of Pemberton men to Vicksburg. Powell quickly assessed the available resources in the area while a large group of infantry soldiers from the Sixth Division gathered to await his guidance. Throughout the remainder of the day and into the night, illuminated by the light of huge bonfires, Powell instructed and led the men in the construction of two bridges. Captain Powell wasted no time for neither rest nor meals. One solid bridge was completed, constructed out of heavy timbers salvaged by dismantling a large cotton gin. The other was a floating pontoon concept created out of interlocking timbers taken from dismantled sheds, filled with cotton bails which floated nicely. By first light Powell had crossed two entire divisions and four batteries of artillery over his impromptu bridges.⁵¹

Powell and his men, while being of little use in the fighting along the march to Vicksburg provided an essential contribution from an engineering aspect which provided the mobility Grant needed. The tired troops arrived at Vicksburg on the evening of May 18, encircling it to block a Confederate withdrawal from the city. On May 19, Grant, hoping to catch the Rebels unprepared, ordered a general assault by the lead divisions on Vicksburg. The attack failed because there was no coordinated artillery support.

After the hasty attacks failure McPherson consolidated a combined-arms team for the remainder of the siege by forming Brigadier General Thomas E. G. Ransom's brigade with five regiments with Powell's battery. He then added a Minnesota Battery to Powell's command making this one of the strongest brigades in the Union Army.⁵² Powell was sent forward on the night of May 21 to inspect General Pemberton's defensive works surrounding Vicksburg. He returned at first light with details on the formidable obstacles, both natural and manmade which would make further assaults by Grant's inferior forces unwise. He rendered his report to General McPherson but Grant insisted they give it one last try.

All through the night of 21 May, Powell directed the construction of firing positions to support Brigadier Thomas Ransom's assault the next morning. Around ten o'clock in the morning on 22 May Ransom's assault began, with Powell ordering the cannons to fire canister over the heads of the Ransom's men. As the Federal assault troops charged through a small depression and up to Confederate parapets, Powell lifted his artillery fires. The superior Confederate numbers, nearly sixty thousand to Grant's forty-three thousand, and superb defensive positions caused the attack to fail. Powell ordered the cannons loaded with exploding shells to prevent a Southern counter-attack and allow the brigade to withdrawal. Ransom's men suffered terribly for their valiant attempt, suffering four hundred eighty-four casualties. Thus began in Powell's own words, "The forty hardest days of my life."⁵³

Every night Powell would lead a sapper team forward to dig using shovels, tin cups, and even bare hands to advance the earthworks towards the Confederate positions. By mid-June the final ascent up to the defensive works was ready. This time Powell formed sixteen teams to dig simultaneously individual saps and zigzag trenches connecting and leading next to the enemy's defensive works. Finally on June 19, Powell began the "graveyard sap" that traveled the final required distance to within a mere seventy yards of the main defensive walls.⁵⁴

As the sun fell on June 20, Powell was ready for the final preparatory task; moving two heavy twenty-four-pound siege guns by hand to the end of the saps with only darkness for protection. Only volunteers would go, and Powell was happy to see many of Ransom's men step forward along side his own. Through the night they struggled to pull the cannons through the trenches and up the steep incline, Confederate efforts to stop them with grenades and shellfire was ineffective. Finally the cannons were remounted into modified carriages positioned at the end and the sap widened to accommodate four men standing abreast. They were at last ready for the final assault on Vicksburg.

On July 3, while Grant prepared for the coming assault, General McPherson called on Captain Powell.⁵⁵ Accompanied by Brigadier General Ransom, both wanted to know the likelihood of success if Powell used his cannons to blow a hole in the defensive works in front of his sap. Powell believed it would indeed succeed. McPherson left to consult with Grant and returned to Powell ordering his batteries should "Open fire on the enemy lines with a national salute at daybreak on the Fourth."⁵⁶

Powell moved his men into position and as daybreak approached to their front hundreds of white flags could be seen. There would be no final assault of Vicksburg.

The siege at Vicksburg took a toll on Powell dropping his weight below one hundred-ten pounds. His stump refused to heal, because of his constant work in the siege trenches. He requested and was granted two months of sick leave to undergo a second operation. He traveled with Emma to Detroit and paid a surgeon with his own money to correct the problem.⁵⁷ The surgeon removed a little more flesh and nerve endings so the stump could heal quicker. Powell, while recuperating from the surgery received a dispatch notifying him of his promotion to major and assignment as chief of artillery for the XVII Army Corps. It was accompanied by orders to report to Natchez by September 1, 1863.⁵⁸

Powell would initially play a key support role through the completion of the Atlanta Campaign. On November 13, 1863, General Sherman launched on his destructive raid to sever the State of Mississippi from the rest of the Confederacy. Powell provided support displacing the entire XVII Corps' artillery in support of the Meridian Expedition. This served as the precursor to Sherman's march to the sea. One of the Federal's favorite experiences during the raid was creating "Jeff Davis neckties" by ripping the rails from the ground, heating them white hot and wrapping them in knots around the large oak trees in Mississippi. Powell believed that the invading Union Army ravaged the countryside like a plague of locust in a field of wheat.

Powell returned and was detached from the Corps under personal request of General Thomas he was to organize and train a regiment of Negro troops at Vicksburg. He soon realized their only use would be as garrison troops in the various western cities liberated by Grant. Also if he was to remain with them he would see no further front line service. His duties with the new soldiers took most of the spring and summer of 1864. Meanwhile his old Corps was ordered to Chattanooga for action. In September his work was complete and the Regiment ready for action, whatever that may entail. Powell was placed in command of the Negro Regiment and promoted to Colonel. He staunchly refused both and requested immediate reassignment to the Seventeenth Corps to his previous rank of major.

On September 18, Powell received his appointment as chief of artillery of the XVII Army Corps. Major General O.O. Howard designated him as his Chief of Artillery; to his division commanders Howard wrote, "You will find him a straightforward and attentive officer."⁵⁹ Powell was then attached to provide Artillery support to Sherman.

His new assignment with Sherman was not what Powell had hoped for since his artillery support arrived after each battle at Alatoona, Kenesaw Mountain, and Rome were decided. His weakened horses and old mules just could not keep pace with Sherman's infantry. General Sherman was reaching a culminating point because of the miserable beasts pulling his trains. Sherman decided that Powell would take the XVII Corps artillery to Nashville and the artillery horses and mules would remain to pull his field trains. Sherman could do without large field cannons; beasts of burden he for mobility in the upcoming campaign/march to the

sea.⁶⁰ And so by fate, Powell would finally realize his burning desire to participate in the progress of a complete battle.

Powell's final assignment under General Thomas placed him as commander of the artillery during the battle of Nashville. For several days prior to the battle Powell was busy preparing the defenses of Nashville. In anticipation of Hood's attack of Nashville, Powell supervised the hasty construction of Earthworks and the fabrication of hundreds of gabions to build fortifications.⁶¹

On the morning of the battle Powell arranged his sixteen batteries into four equal divisions placing each spread across the rear of the army. In accordance with Thomas' strategy, Powell would send the batteries forward at a gallop to support the various critical areas of the battle. Once committed, the batteries would fire and displace on a linear line to facilitate control and defeat enemy counter-battery fires. Powell intended to control them so that no battery commander would be forced to strike out in blind initiative, as he had done at Shiloh.

During the morning of the first day of the battle a thin fog clung to the ground as Brigadier General Edward Hatch's mounted infantry launched an attack on the Confederate's weak left flank. Powell quickly sent one artillery section crashing forward in support and returned to Thomas' side where they both watched the hotly contested battle through field glasses. Powell saw his four batteries pass through the Union lines and open fire on the enemy's works, while Hatch's men dismounted for the final assault. As they climbed to the top of the parapets, the fog and gun smoke combined to obscure the results. Anxious moments

passed, when suddenly a stiff breeze blew past them, down in the valley towards the battle. The clouds enshrouding the hill parted and both Thomas and Powell let out a yell. They could see the stars and stripes waving over the enemy's position two miles distant! Thomas told him with the fall of that fort the matter was no longer in doubt; the only necessary action left was to destroy General Hood's army.

Afterwards, Powell was assigned to Thomas' staff and spent the remaining days of December restoring the artillery equipment damaged during the battle. Powell was once again offered promotion to lieutenant colonel but after a long discussion through the night with Emma decided to not accept it. General Howard requested his transfer to Louisville, Kentucky where the one-armed general thought he might prevail in getting Powell to accept a well-deserved promotion and remain in the Union Army. However Powell, never one to change his mind, reminded the general his original enlistment was long expired, and he wished to resign from the army for health and disability reasons.

Powell traveled to Springfield on January 2, 1865, to find his old regiment had just arrived and he also bumped into Dr. Medcalfe, the surgeon who had earlier performed the amputation. He thought it may be a good idea for Powell to have a brief note about his surgery, so he wrote one out for Powell. John stepped forward with a letter of resignation, which was granted with a payment of \$228 in back pay.⁶²

After the war, Powell was offered a prestigious political position as County Manager just outside of Chicago, but declined in favor of a professorship at the Wesleyan University in Bloomington, Illinois. Within two years he persuaded the Illinois Legislature to

pass funding for a department of geology and natural science at State Normal University (present day Illinois State University) at Normal, Illinois. Naturally, he was elected to chair the department at the same time he was appointed the director of the Illinois State Natural History Society. These positions would give Powell his base of operation and the necessary funding to pursue his expeditions to the Territory of Colorado.

Endnotes

¹Lester Ward, "John Wesley Powell," Popular Science Monthly (Spring 1881): 390. This journal contains numerous articles on Powell's life and is well worth exploring.

²William Culp Darrah, Powell of the Colorado (Princeton: Princeton University Press, 1951), 4. Darrah has the most detailed secondary account of Powell of any book that exists on Powell. Darrah spent virtually decades researching Powell's life.

³Ibid., 5.

⁴A "circuit Rider" was the nineteenth century version of the modern evangelist. A minister of the Gospel would travel from village to village over several counties to preach to areas where no minister was or could be afforded. They would complete several weeks of the circuit by returning to their respect home base to regroup. After a few years in a certain area they would feel God's leading to another more distant frontier and repeat the process.

⁵Marian T. Place, John Wesley Powell -- Canyon's Conqueror (Boston: Houghton Mifflin Company, 1963), 13.

⁶William Culp Darrah, 7.

⁷Mrs. M. D. Lincoln & Grove K. Gilbert, John Wesley Powell--A Memorial to an American Explorer and Scholar (Chicago: The Open Court Publishing Company, 1903), 1. Certainly the primary source of information on Powell's youth and war years is the biographical sketch written by Mrs. Lincoln (Bessie Beech). Published originally in "Open Court," volume 16, 1902, 705-15, and reprinted, with revision, in 1903 in Gilbert's edition, "John Wesley Powell--A Memorial to an American Explorer and Scholar." This sketch was based on a series of interviews with Major Powell from 1885 through 1895. Scattered through Powell's letters to Mrs. Lincoln and interview notes are numerous references to his childhood in Ohio and Wisconsin, and his civil war experiences. The author will use this as the primary source for anecdotes and instances, and substantiate it with William Culp Darrah's, "Powell of the Colorado," and Frederick S. Dellenbaugh, "The Romance of the Colorado River."

⁸Marian T. Place, 13.

⁹William Culp Darrah, 15. General information about the Powell family during this period is located in the 1840 United States Census. C. S. Powell's book "History and Genealogies of the Powell's in America," provides additional details about the family. Darrah researched the family back to England with vague results so that either Joseph was born in 1802 or 1805 at Shrewbury, England. Mary Dean's probable birth was November 11, 1805. Their marriage took place on January 31, 1828, in Birmingham, England.

¹⁰Powell spoke frequently of the persecution and acts of terrorism the Powell's faced in Jackson, Ohio. The unpopularity of Joseph Powell's message resulted in many of his friends enduring frequent physical altercations and financial sufferings. Many in Powell's congregation refused to tithe to the church because of his views. Later the Methodist Episcopal Church waffled on its slavery stance, resulting in Joseph Powell and other leaders forming the Wesleyans Movement. This newly birthed movement contained three declarations with no room for compromise: the buying or selling of human beings or owning another person; use of intoxicating liquors; and the Church government followed a decentralized method. Each of these appealed to Powell and he was quickly embraced by the movement and assigned to Wisconsin.

¹¹Wallace Stegner, Beyond the hundredth Meridian: John Wesley Powell and the Second Opening of the West (New York: Houghton Mifflin Company, 1954.), 13. Stegner himself states the younger years of Powell were not researched in great detail because this period is not critical to his theme of the biography of a career. The reader should use caution in reading his second chapter on Powell's youth. He characterizes them as stormy concerning his relationship with his father, and writes of Powell's flat rejection of Christian teachings or a ministry calling in favor of pursuing science. Neither Powell's own memoirs or the best books of this period of Powell's life support his comments.

¹²Mrs. M. D. Lincoln & Grove K. Gilbert, 2. Mr. Crookham always referred to Joseph Powell as 'Great Britain.' Mr. Crookham owned a large slave-free farm that supported his first love, science. Crookham had the leading geologist and biologists call on him requesting his opinion on various topics. He maintain a large collection hall and classroom which also served as a laboratory. He frequently had various young men attending his classes, in the unofficial college of the West.

¹³Ibid., 3.

¹⁴William Culp Darrah, Powell of the Colorado, 14. A source for the village of Jackson, now a city, is contained in R.A. Jones, "Early Jackson" with this incident recorded on page 29.

¹⁵Wallace Stegner, 11.

¹⁶Increase Lapham is a distant forefather of the author of this thesis. He was the mentor to Dr. William Mather and the founder of the United States Weather Bureau. Lapham had the privilege of preparing the man who would shape John Wesley Powell's mind in geology and the military. When the Powell family moved in 1846 to Walworth County, Wisconsin it was surely not by sheer coincidence that this was Lapham's home also. Powell's years in Wisconsin are somewhat unclear with regard to his education. It certainly not much of a stretch to speculate Increase Lapham may have taught the younger Powell. He certainly knew the area, with his historical record found in his book, Wisconsin: It's Geography and Topography, 136.

¹⁷Wallace Stegner, 14.

¹⁸William Culp Darrah, 13.

¹⁹Ibid., 17-18.

²⁰Mrs. M. D. Lincoln & Grove K. Gilbert, 4.

²¹Ibid., 6.

²²William Culp Darrah, 20.

²³Mrs. M. D. Lincoln & Grove K. Gilbert, 6-7.

²⁴Frederick S. Dellenbaugh, The Romance of the Colorado River (New York: G. P. Putnam's Sons, 1904), 372.

²⁵Mrs. M. D. Lincoln & Grove K. Gilbert, 11.

²⁶William Culp Darrah, 40.

²⁷Mrs. M. D. Lincoln & Grove K. Gilbert, 10.

²⁸William H. Goetzmann, Exploration and Empire (New York: Random House, Inc., 1966), 533.

²⁹United States War Department, Records, 1861-1865, "Company Descriptive Book, Company H, Twentieth Regiment Illinois Volunteer Infantry."

³⁰William Culp Darrah, Powell of the Colorado, 47.

³¹John made the trip to Detroit as he had done on numerous field expeditions earlier. Emma was the daughter of John's uncle, she had a great love of both John and the natural sciences. The Powells and Deans were concerned about these first cousins and their developing romance. The parental displeasure was ever present, but to little effect.

³²U.S. War Department, Records, 1861-1865, "Company H - Muster Rolls." These records show Powell's detachment to fortification duties, and early promotion to first lieutenant.

³³An original map of Fort "D" was published in Cape Girardeau's newspaper Community, 27 August 1936. This map is available for review at the local historical association.

³⁴Related in a letter by Mrs. M. D. Lincoln. Powell encouraged this competitive bowling in the Forts causeways as a fine way to defeat the boredom of camp life. Alleys of heavy planking were constructed, and pins eighteen inches tall and three inches in diameter were carved

of hardwood. thirty-two-pounder cannon balls were those of choice for his men, who took first place in the sport. His men finished a disappointing second in the twenty-four-pounder class!

³⁵The Detroit Free Press, 1 December 1861. The marriage certificate is preserved with Powell's pension claims and lists the wedding conducted by Rev. J.H. Griffiths.

³⁶Mrs. M. D. Lincoln & Grove K. Gilbert, 12-22. Mrs. Lincoln's biography is the primary source for this account of Powell's Civil War years. Only the supplemental material of this period will be cited.

³⁷U. S. Grant, letter to Secretary of War, dated Cairo, Illinois, 2 December 1861.

³⁸Bruce Catton, The American Heritage Picture History of the Civil War (New York: Golden Press, 1961), 45.

³⁹Ibid., 46.

⁴⁰Official Records of the War of the Rebellion, Series I, Vol. 52, 16-21.

⁴¹William Culp Darrah, Powell of the Colorado, 57.

⁴²Ibid.

⁴³General Prentiss was forced to surrender nearly 2,200 men and all but Powell's battery which escaped under the younger Powell's leadership. The reinforced Sixth Division suffered over 3,000 casualties in that one orchard, and lost two generals and eight colonels.

⁴⁴Mrs. Lincoln's account was primarily used for this battle. However she made many errors to possibly add dramatic effect. For example, she states "within a month after his marriage he lost his right arm in the battle of Pittsburgh Landing or Shiloh" in fact they were married in November and the battle took place in April. These numerous time errors have been corrected by the use of war records and historical accounts of the battle.

⁴⁵Dr. William H. Medcalfe, Surgeon of the 49th Illinois Volunteer Infantry was prior to the war only a druggist. This would explain why surgery on Powell's arm caused him so many difficulties. Yet Medcalfe's careful records saved Powell's future career and pension. When Powell left the Army in 1865, his records indicated he was a deserter, as he had moved forward without written orders and neither General Wallace, who died, or General Prentiss who was taken as a POW, filed a report of Powell's participation.

⁴⁶Mrs. Emma Powell, letter to friends. She relayed a good many of the experiences they both had during the Civil War. Personal letters

from Mrs. Klotho McGee Lattin, Mr. Eric Parson, and Miss Margret Whittemore confirm the same accounts. These letters were later used as primary source material by Mrs. M. D. Lincoln, Gilbert, C. D. Walcott, and W. C. Darrah.

⁴⁷Most accounts of John Wesley Powell state his arm was shot off in battle. Another misstatement is his wife's presence on the battlefield. Although prior to the battle, up to April she was a frequent visitor to the Battery's camp at Pittsburg Landing. Doctor Wm. H. Medcalfe's affidavit, dated January 3, 1865, states of Powell "was brought on the Hospital Boat in my charge at Pittsburg Landing ... with his right forearm badly shattered... and conveyed to Savannah, Tennessee, and placed in the General Hospital."

⁴⁸Mrs. Emma Powell's personal letters to friends. Letters are in the possession of W. M. Darrah and cited in his work on Powell's life.

⁴⁹William Culp Darrah, 59.

⁵⁰Major John Wesley Powell in a personal letter to G. K. Gilbert and reprinted in Mrs. M. D. Lincoln & Grove K. Gilbert's, "John Wesley Powell -- A Memorial to an American Explorer and Scholar," 16.

⁵¹William Culp Darrah, 62.

⁵²Ibid., 63. Details of this consolidation and forming of the brigade team are to be found in The History of the 95th Illinois Volunteers Infantry Regulars and two unpublished reports of the First Minnesota Battery, Lt. Hunter to Adjutant General of Minnesota dated June 4, and CPT. Clayton on July 16. Both report Powell was a Major incorrectly, though the position he held rated the rank.

⁵³Mrs. M. D. Lincoln & Grove K. Gilbert, 18.

⁵⁴War of the Rebellion Records, series I, vol. 24, part 2, 197-203, detail the work of Powell and his men. A monument at the battlefield to this achievement is placed at the most advanced position of this sap.

⁵⁵The only record of this conversation is relayed by Powell to Mrs. Lincoln.

⁵⁶Mrs. M. D. Lincoln & Grove K. Gilbert, 19.

⁵⁷Special order 157, Headquarters 17th Corps.

⁵⁸Powell was officially promoted to the rank and assigned as Inspector of all Artillery for the Department, and Army of the Tennessee on 18 September 1864, and officials recognized for pay purposes on 29 May 1864.

⁵⁹Major General O. O. Howard letter from Dallas, Georgia, 3 November 1864.

⁶⁰Major General Sherman, 31 October; Powell ordered to move his command and report to Major General Thomas. Powell arrived just prior to Hood's destruction of the rail lines leading to Nashville.

⁶¹War of the Rebellion Records, series I, vol. 49, part 2, 774-780.

⁶²Standing Order 22, War Department Office of the Adjutant General, 14 January 1865. This lists Major John Wesley Powell as honorably discharged "by reason of expired time."

CHAPTER THREE

THE FIRST EXPEDITION

Rested from the tremendous effects of the war, in 1865, Major Powell turned down a lucrative political position in Du Page County, Illinois to accept a position as chair of geology at the small Wesleyan University in Bloomington.¹ His decision immediately established a preference for pursuing scientific interests verse well-deserved political positions and the prestige associated with them. He remained in the professorship for two years while lobbying to create a department of geology and natural history in the State Normal University (University of Illinois) at Normal, Illinois. Powell met with success for his efforts when the Illinois Legislature in 1867 passed a bill establishing the department and placed him as its chair.²

Powell's new position provided the funding and assistance necessary to explore the Territory of Colorado. During the summers of 1867 and 1868 he led small groups of students on field trips to the Colorado Rockies region. Without realizing it, or planning for it, Powell was steadily preparing for his greatest exploits. The final days of summer in 1868 found Powell intently listening to incredible tales by local hunters of mysterious gorges in the last considerable piece of unexplored land in the United States. These tales captivated Powell and set in motion the concept for discovering what might lie in the

uncharted lands. Thereafter, he was determined to see the accomplishment of his vision "to explore the great canyons of the Colorado."³ His brother, W. B. Powell, later wrote, "It was as near an inspiration as can be imagined. . . . His mind and energy were directed irresistibly toward this conception."⁴

He remained the winter in the Colorado Territory near White River with his new friend Chief Douglas, leader of the Ute Indians, and the nucleus of his future team--the packers, hunters, and guides who had outfitted his previous field trips.⁵ That winter was spent learning all he could from his party, the Ute and Paiute Indians. They educated Powell about the uncharted region, which helped formulate his plan for the trip. The trappers told of vicious rapids, large waterfalls, and swirling whirlpools. His journal records one Paiute warrior's somber portrayal of a fellow warrior's misfortune on the river, "The water go h-oo-woogh, h-oo-woogh; water pony (boat) h-e-a-p buck; water catch'em; no see'em Injun any more! No see'em squaw any more! No see'em papoose any more!"⁶ Powell wrote towards spring, "More than once have I been warned by the Indians not to enter this canyon."⁷

Powell traveled as a guest of the Union Pacific Railway to Granger as winter broke, selling his pack animals and kit, continuing immediately to Washington, where he met with his old friend, General Grant. Encouraged by Grant, Powell brought to Congress a resolution, endorsed by Grant, for their consideration that would authorize support for his expedition. Congress passed a joint resolution authorizing him to draw ten month supplies for twelve men or the equivalent in cash from any Western Army post.⁸

Next, he would need to acquire special equipment and boats, along with arranging additional financing. Powell quickly coordinated with both Army Engineers and the Smithsonian Institution for the specialized equipment; both gladly complied with his request, since the best maps of the region were completely barren of even the largest detail. In fact, maps of northern Arizona showed only an impressive 200-mile-long blank spot where the canyon lay.⁹ All they knew was the headwaters of the Green River began at over six thousand feet above sea level and emptied at the Virgin River approximately six thousand feet lower.¹⁰

Returning to Illinois, Powell coordinated with the University trustees to divert his salary to the Western cause and received small sums from other institutions and private sources. Once again the new Union Pacific Railroad, eager to learn the topography of the region, provided free passage for Powell, his equipment, and four specially made boats from Chicago to the Green River (principle tributary of the Colorado), Wyoming.

He commissioned four Stalwart Boats of original design, from the Bagley Boat Yard.¹¹ The first three boats weighed nearly one-half ton, each with double reinforced oak ribs and beam posts. They were over twenty-one feet long, had a four-foot beam, and watertight compartments for buoyancy fore and aft.¹² Powell figured their capacity to handle over a ton of cargo each was more than ample for the planned ten-month journey. The boats were to have an accompaniment of two rowers, one behind the other. Powell visualized the rear man or possibly a third passenger would steer the craft using a robust sweep

oar mounted to the stern for swift passages and synchronized rowing to guide the craft on the calm. Only one serious design flaw existed, a conventional round bottom, which made them inherently unstable and created a relatively deep draft which prevented shallow water passage. It was nearly sixty years until better designs would tackle the river.

The fourth boat, again of original design, he named *Emma Dean* after his wife's maiden name. This boat of pine was only sixteen feet long and considerably lighter, the perfect craft for Powell's plan to lead from the front. The swift boat would allow for scouting dangers that lay ahead and for developing the best course of action. He then would use signal flags to pass his plan back to the main body of boats.¹³

His many years on the rivers of the Midwest, exploring the geology and biology gave Powell special insights on the requirements for the types of boats. His river experience combined with his personal observations of the rocky conditions of Western rivers allow Powell to design boats specially tailored to the conditions. These were excellent craft, and on May 4, 1869, the Major personally tested them in the rough waters of Lake Michigan before he loaded the craft on flatcars bound for the Green River Station. These original designs for the boats would stand the test of time because it was nearly sixty years until better designs would tackle the river.¹⁴

He rendezvoused on May 11, 1869, at the headwaters of the Green River with seven of the men who would go on the journey. He quickly found Walter, his brother and lifelong companion, who had served under Powell's command as a battery commander during the Meridian Expedition

of February 1864.¹⁵ Powell was saddened to find Walter still showed the emotional scars from his Confederate Prison experience during the Civil War.¹⁶ Sergeant George Bradley, a Western cavalry scout from Fort Bridger, Wyoming, who was known for his handiness with riverboats, was also present along with five mountain men. This group had all spent the previous winter at the White River camp with Powell.¹⁷

These mountain men were all enlisted veterans of the Civil War, and had established solid reputations for their hunting and trapping skills, as well as for their disdain of officers and military discipline.¹⁸ They had made ideal guides for Powell's previous two field trips to the region. The leader of the group was Jack Sumner, aged 28 in 1868. He was also an owner of an Indian trading post. His assistants included: 35-year-old Oramel Howland; Oramel's younger brother, Seneca Howland, 25; and Bill Dunn and Billy Hawkins, both in their twenties. Bradley's journal noted, although capable men, they were inclined to become ill-natured whenever the 34-year-old Major Powell, chose to use an authoritative style.¹⁹

Powell, while returning from a brief trip to Fort Bridger for supplies, chanced upon two adventure seekers. The first man was an unemployed teenage mule driver named Andy Hall age 19, and the second, a florid-faced Englishman, Frank Goodman.²⁰ Their addition completed the team, providing the necessary muscle and youth for the difficult journey that lay ahead.

The Expedition Begins²¹

Just imagine the scene. Slightly after noon on 24 May 1869, a small crowd began to gather on the banks of the Green River by the

railroad bridge to see the explorers off. Powell sat perhaps pensively as he recalled an old Ute Indian legend of long ago, which he later placed in his journal:

The great chief of all the Utes lived with his beloved wife. When she died, he mourned day and night, and his sorrow was spread throughout all his people. Seeing such grief, Ta-vwoats, a god, appeared before the chief, and tried to comfort him. But the chief's sorrow did not diminish. Finally Ta-vwoats offered to take the chief to the blessed world of the dead. The chief could visit his wife and see that she was truly happy if he promised to return to earth and end his mourning. Then Ta-vwoats rolled an immense ball of fire across the plain, creating a chasm that led to the home of the dead, and the two descended in search of the chief's wife. Upon their return, Ta-vwoats placed a raging river into the bottom of the canyon so that no one else could attempt to visit the afterworld.²²

Certainly Powell may have wondered if his friends, the Utes would someday tell the legend of the one-armed white warrior who disappeared through the river door that led to the home of the dead. Unknown to Powell, just as the last of the supplies were loaded, the Howland brothers smuggled a Keg of whiskey into their boat. Later as disaster struck, salvage of the whiskey barrel would cause great celebration for the crew. Although Powell avoided alcohol, he would realize its value to lift the hearts of men.

Powell easily broke his melancholy mood as he recalled a time over three centuries earlier.²³ When the first white man, a young Spanish Conquistador, Garcia Lopez de Cardenas in search of the lost golden cities, peered over the edge into the huge chasm with its diminutive river. He could find no way to bypass that unconquerable obstacle and abandoned his quest.²⁴ Now as one o'clock approached, Powell, the one-armed explorer would surmount this "last great

unknown."²⁵ Powell's men pushed the boats into the river as the crowd yelled their farewells. That first peaceful night Powell wrote, "About one o'clock on May 24, We raise our little flag, push the boats from shore, and the swift current carries us down."²⁶

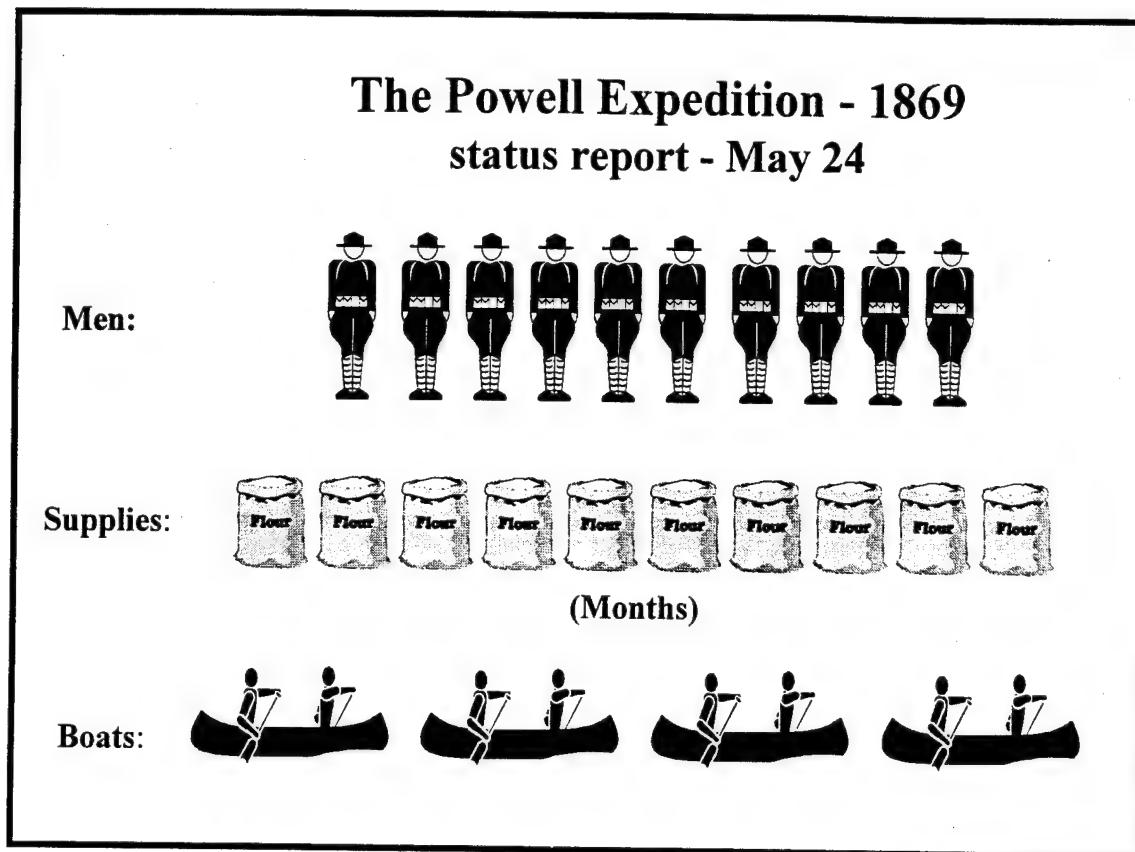


Fig. 1. Status report for the Powell Expedition on May 24, 1869.

The river was initially very kind to this inexperienced group, which was a good thing for they had a lot to learn in a hurry. Major Powell led the way in the light pine boat *Emma Dean* followed by the three heavier oak boats; Walter Powell and George Bradley in the *Kitty Clyde's Sister*, Andy Hall and Billy Hawkins in the *Maid of the Canyon*,

and the rear was brought up by the Howland Brothers--Oramel and Seneca, Frank Goodman.

This period served as a training encounter, so invaluable once difficulties were encountered on the Colorado. On the second day the party experienced the first of dozens of mishaps to follow on their journey down the Green River. The crews failed to pay attention to the river's varying depths when suddenly Powell's and two other boats ran ground on the sand bars. Powell, from there on, designated someone to constantly "read the river." These corrections quickly ended the problem. The following day only one boat ran into the bank, and overall things went smoother. The abundant geese provided fresh meat to cap of the better day with a feast. Billy Hawkins, the expedition's cook, called out "Plunder! Plunder! Come and get it!" His unique calls were a feature of every meal from then on.²⁷

On the twenty-seventh, just below Henry's Fork they stopped to dig up a cache of instruments and supplies the Major had prepositioned the past spring. The planned halt was necessary so Powell could assign responsibilities and provide training on the scientific instruments. Powell's intention from the beginning was to create in the minds of the men a clear understanding this was a scientific expedition and not a mere river adventure.

Powell demonstrated how the Chronometer and the Sextant together could pinpoint their position on the ground. Through the means of hundreds of measurements carefully drawn lines would begin to map this uncharted void. His Barometers could provide the height of cliffs and the descent of the river. Ultimately, the measurements would

provide details on the amount of descent remaining until reaching the charted levels in Arizona.²⁸

The Major asked Bradley to climb the wall of the first canyon encountered, which they named Flaming Gorge. Powell's intent was to demonstrate the equipment's capabilities and map this first gorge. Bradley scaled the flaming red bluffs and peered back over the edge at the diminutive camp far below him. Both party's measurements confirm his elevation, some twelve hundred feet above the group. The next day, the novice scientists began to appreciate Powell's incessant curiosity over the strangest things. For example, the sequence and thickness of strata, was not just for observation but for measurement too. Powell had met his goal, as his men resolutely began the "geologizing" of the canyons and rivers. Afternoon on May 30, the journey is resumed passing without incident through two minor canyon systems. Here, Major Powell implemented his new method to avoid the risk of a debacle at each set of rapids or falls encountered in the canyons. He called this method "lining," because of the usage of ropes in the process.

When the Major, who would scout ahead in the lighter and faster *Emma Dean*, encountered rapids he judged as too dangerous, he would signal for the other boats to pull ashore. Individually, each boat with a rope tied to each end, would travel through the rapids with men guiding it by the ropes. At the falls or the worst of the rapids, Powell would order the removal of all the supplies, almost three tons, prior to lining the boats. Then once the boats were safely past the obstacle, the supplies would be handed down the edges to the waiting boats. Needless to say,

this was not the preferred method costing several hours of delay each time, not to mention the precarious trails around the cataracts.

After only a couple of days, Powell decided to gamble by shooting through their first set of strong rapids. Powell recorded, "Here we have our first experience with canyon rapids. . . . We thread the narrow passage with exhilarating velocity, mounting the high waves, whose foaming crests dash over us, and plunging into the troughs, until we reach the quiet water below; and then comes a feeling of great relief."²⁹

On June 8 Powell decided in order to maintain progress down the river, a more magnanimous routine was needed rather than lining at every difficult situation. Major Powell explained to his men the new approach and wrote about it in his journal:

When we approach a rapid, or what, on other rivers, would often be called a fall, I stand on deck to examine it, while the oarsmen back water, and we drift on as slowly as possible. If I can see a clear chute between the rocks, away we go; but if the channel is beset entirely across, we signal the other boats, pull to land, and I walk along the shore for closer examination. If this reveals no clear channel, hard work begins. We drop the boats to the very head of the dangerous place, and let them over by lines, or make a portage, frequently carrying both boats and cargoes over the rocks, or, perhaps, only the cargoes, if it is safe to let the boats down.³⁰

The men wholeheartedly agreed and together they pushed off from camp to enter Lodore Canyon. Oramel Howland's statement captured the excitement, if not the speed of Powell's new approach, by his claim of "sixty miles an hour."³¹ Naturally, they did not travel quite that fast, but Powell's journal did accurately reflect flow speeds of the river sometimes they approached twenty miles an hour. The day continued to progress nicely but Powell noticed the water was rising. June 9 began with the river continuing to rise noticeably along the canyon

walls. The boats were also buffeted by the foaming waters as they bucked through the first series of rapids.

The distance between the canyon wall's suddenly closed in a natural throat with black massive walls as the river began to develop spinning funnels and cross-currents. A loud drumming roar, caused by the large boulders dragged along the river's bottom combined with the water's apparent boiling caused by agitation, signaled it was time to line the boats. Powell had the *Dean* put to shore as they approached a new series of rapids. From below, the roar of unseen falls was deafening, as Powell leaped to the shore. Tasking Dunn to signal the other boats to stop, he began to look for the means to view the obstacle that lay ahead and glanced over his shoulder as he descended, just in time to see the *Sister* land behind his boat. He proceeded to the ledge, believing all was safely under control and visualized the best route to portage the boats down the falls. Unexpectedly he heard shouts from up river and turned to see *No Name* with its crew coming over the falls.

Apparently, they were preoccupied with the large amount of water in their boat, and while bailing, the two Howland brothers and Frank Goodman had been a second late in obeying the signal.³² Nobody could do a thing but watch in utter disbelief as events unfolded. The first falls did not destroy the boat but greatly assisted as its jagged rocks sheered the oars from both sides of the boat. The elimination of the primary oars left the boat completely unmanageable as it rebounded down the cataracts.

Powell described their misfortune:

I pass around a great crag just in time to see the boat strike a rock, and, rebounding from the shock, careen and fill the open

compartment with water. Two of the men lose their oars; she swings around, and is carried down at a rapid rate, broadside on, for a few yards, and strikes amidships on another rock with great force, is broken quite in two, and the men are thrown into the river; the larger part of the boat floating buoyantly, they soon seize it, and down the river they drift. Past the rocks for a few hundred yards to a second rapid, filled with huge boulders, where the boat strikes again, and is dashed to pieces, and the men and fragments are soon carried beyond my sight. Running along, I turn a bend, and see a man's head above the water, washed about in a whirlpool below a great rock.³³

It was Goodman clinging to a huge boulder in the middle of the cataracts. Powell could tell Frank was failing fast from the constant barrage of water in his face. The Major ran down the bank as other crew members followed closely behind. He shouted to the Howland brothers, now stranded on a sandy island on the river's far side, to pass a piece of driftwood to Goodman. They pulled the haggard Englishman from the water on to their uncharted island. O. G. Howland later wrote his view of the circumstances,

About One o'clock the signal boat signals at the foot of a very bad rapid to go ashore. . . . but owing to not understanding the signal, the crew of the *No Name* failed to very effectually, owing in the main, to having so much water aboard as to make her nearly or quite unmanageable; otherwise, the mistake was seen by us in time to save her.³⁴

The situation was far from finished as the three men found themselves stranded on a quickly submerging island, caused by the surging river. Major Powell knew their only hope of rescue was by boat. He ordered his men back to the beginning of the falls, and they lined the lighter *Emma Dean* down the first series of rapids. All of the remaining instruments and gear were quickly emptied on the banks. Sumner volunteered, at great risk he poled the boat across the river and with ropes the remaining men pulled their four companions back to

safety. Powell described the reunion, "We were as glad to shake hands with them as if they had been on a voyage round the world and wrecked on a distant coast."³⁵

They had lost nearly everything they owned to include clothing, except for shirts and underdrawers--the usual uniform worn when going through the worst of the rapids. Worse yet, nearly two thousand pounds of supplies and equipment had vanished. There was even no trace of the remaining pieces of the *No Name*.

Powell had the three men rest while the remaining crew members lined the two other boats down to the temporary camp. The provisions were carefully organized and inventoried to determine the extent of the loss. The final tally was nearly one-third of their scullery, three barometers, and half the mess kit to include the cooking stove. Powell decided to remain overnight as the group looked sullenly at over a mile of rapids awaiting them in the morning. Powell named the location fittingly, Disaster Falls.

Following the evening meal, a careful search located the aft cabin and a portion on the far side of the river. Powell believed the precious barometers were inside the compartment, but he could not risk a night rescue. Powell returned hoping the wreckage of the *No Name* would remain overnight in the rocks. Without the instruments it would have been impossible to track their progress. They had only traveled one hundred-fifty miles with more than nine hundred remaining and still had not even reached the junction to the Green and Uinta Rivers.

A careful review of his standard operating procedures that evening revealed a flaw. Originally, in anticipation of such

accidents, Powell had ordered the rations, instruments, and clothing evenly divided among the three boats. Even duplicates of critical equipment necessary for the expedition's success were provided. One exception to the distribution plan existed, and the barometers were located in a single boat. Powell knew he could not continue without them and was faced with two difficult choices: either a long walk to Salt Lake City or attempt a rescue at first light.

While the others made oatmeal for breakfast, Powell ran down the river's edge to discover the wreck had only shifted down river sixty yards and the aft appeared still intact. After breakfast with the water falling as rapidly as it had risen yesterday, Jack Sumner and Andy Hall poled across to the wreck of the *No Name*. Soon the men on shore were cheering with wild abandonment as they greeted the returning rescuers. Powell saw how happy the men were, so he joined in with a rousing cheer. He was pleased to see the men understood the importance of recovering the indispensable barometers. When the *Dean* landed, Jack tossed the instruments to Powell, while Andy reached into the hold compartment and proudly held up a three-gallon barrel of whiskey stored without Powell's approval. He then knew the real reason for their celebration, but wrote, "I am glad they did, for they think it will do them good, as they are drenched every day by the melting snow, which runs down from the summits of the Rocky Mountains."³⁶

The loss of the clothing and bedding were made up by donations from the other members and Powell's backup clothing to complete the retrieval of gear for the trio. Although a great deal of food was lost, with proper management there still was plenty for the trip. Bradley,

critical at the start of the expedition of Powell's requirement to bring great quantities of food, reflected, "We have plenty of rations left, much more than we care to carry around the rapids, especially when they are more than a mile long."³⁷ Powell may not have seen it the same way, nevertheless, when carrying the kit through the rocks Powell noticed two of the missing fifty pound bags of flour lodged up in the rocks. He decided, based on the overcrowded conditions in the boats, to leave the flour high and dry under a ledge. The group, now with boats reloaded, pushed off to begin six days of trials. During those days of constant lining or portages five miles of progress would seem great to them.

A brief analysis of Powell's actions from the time of the accident until they resumed their trip is useful here. Powell demonstrated several key leadership competencies: communications, decision making, and technical proficiency. The Major exhibited his ability to assess a situation, in this case the near drowning of Goodman, and concisely articulated to the men a rescue strategy. In the same vane, Powell's quick decisions early on and carefully weighed decision later that evening, by not attempting a night recovery of essential gear, revealed an ability to provide high-quality judgments. A weakness existed in his technical competence. This was revealed by his failure to ensure the most sensitive pieces of equipment were properly safeguarded and dispersed. Finally, Powell used a directive style to tell his subordinates what he wanted done and how to do the unfamiliar tasks.

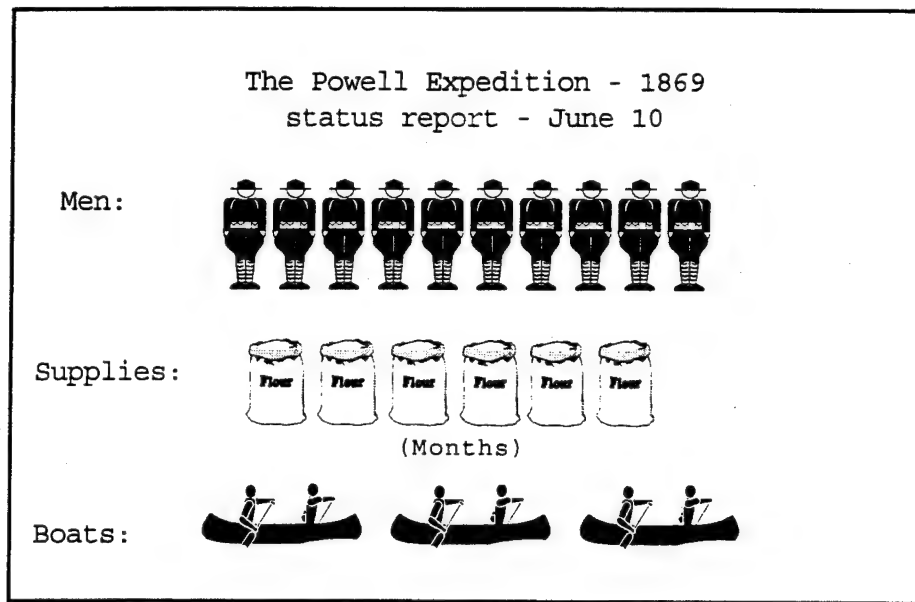


Fig. 2. Status report for the Powell Expedition on June 10, 1869.

Quick decisions were required and Powell was there with viable solutions for the situation. It is important to note, no one was either critical of the crew's mistake which almost ended the expedition, or found fault with how Powell handled the disaster. During the recovery, Powell carefully assessed his load plan and made adjustments, and redistributed resources to balance the losses, but only after gathering all the facts.

The Journey Continues

The wild river kept the men and supplies constantly wet. Even the dried beans in storage began to sprout with life. To increase their concerns over spoiling food, the wildlife consisting primarily of Geese and mountain sheep, earlier so abundant, had now vanished. Hawkins voiced his concern over the dwindling food, but Major Powell reassured him adequate stock awaited them at the Ute Indian Agency.

While going through Lodore Canyon the men began to realize what demands the river was going to place on them. There was seemingly no end to the water's agitation as it ran over the shattered boulders to form a contiguous cascade. Bradley mused the river must be just one immense rapid. Each day was filled with either the danger of running the rapids or backbreaking portages. Several of their days were occupied with both. One afternoon the *Sister* was thrust into the canyon's wall with such velocity that a jagged rock splinter punctured its side, forcing a delay for repairs. The rocks were often sharp and unforgiving to the slightest inattention to detail. Almost unbelievably, with so many mishaps the worst injury was only a bad gash above Bradley's eye, but minor cuts and bruise were a daily occurrence.

During one occasion, five of the toilers were lining a boat when a violent cross-current ripped the rope free, resulting in five sets of burned hands. What is more, the *Maid of the Canyon*, now adrift ran through the severe rapids and disappeared around the canyon's sharp corner. The men scrambled down the river's edge and around the bend, only to find a rare piece of fortune. The boat was harmlessly spinning in the river's center, trapped by a giant eddy. Each night's camp offered little relief as the day's actions had thoroughly drenched everything to include bedding. Camp selection was based on where the expedition was when night fell, and not determined after careful reconnaissance. This meant many a night was spent sleeping on boulders or rock ledges.

At long last the end of Lodore Canyon was reached and the river broadens. Powell allowed the men to drift slowly along to rest

following the arduous work of the past week. The next three days were spent in slowly flowing waters, drifting past herds of elk gathered in the abundant grass on the flat plains. Three small canyons are quickly dispatched as the river turns to south and enters eastern Utah. They had run the course through the Uinta Mountains and now entered the less famous bad lands of Utah.

Not forgetting the reason for the expedition, Powell takes time, while repairs are rendered and new oars hewed out of driftwood, to climb up to the plateau above. Accompanied by Bradley, he records their elevation at two thousand feet above the river. In his first letter to the *Chicago Tribune* and later recorded in his final report to Congress, Powell and Bradley sit on the ledge and look down the escarpment. "I can do this now," he wrote, "but it has taken several years of mountain climbing to cool my nerves, so that I can sit with my feet over the edge and calmly look down a precipice 2,000 feet. And yet I cannot look on and see another do the same. I must either bid him come away or turn my head."³⁸

On the evening of June 16, the crews finally enjoyed a decent camp site. About a quarter of a mile in length and fifty yards wide what represented one of the few flat sandy strips of land encountered through the Lodore Canyon aggregate. Powell told the men to set-up camp and prepare for supper while he climbed to the cliffs above the site to measure bands of strata. The men mused how at last Powell had selected a satisfactory location, with plenty of shade from the abundant sage and willows. There was even ample soft grass to lie on that evening instead of the accustomed rocks.

While Andy busied himself with preparation of the evening meal a sudden gust of wind carried hot amber from the cooking fire to a nearby pine. The tree quickly ignited into flames illuminating the camp, but it seemed only a local affair. Just as suddenly, a huge whirlwind from the opposite direction sent a sheet of flames across the willows, sage, and grass. Spontaneously igniting all of the brush and engulfing the camp in flames. The men raced for the boats, but not before the flames set one man's pants on fire and another's shirt ignited. Bradley's face was scorched, while Walter Powell's prized handlebar mustache was partially consumed; however, none of the burns caused permanent injury. Hawkins in his haste to escape the flames, scooped up the cooking gear and leaped into a boat as the others sliced the tether lines and pushed the three boats out on the water. Unfortunately, Andy Hawkins' momentum carried him right out the other end of the boat and into ten feet of river. This resulted in the loss of the majority of the mess kit, and required the sharing of utensils and plates for the remainder of the expedition.³⁹ Powell watched in utter disbelief the effects of the wind, still a bane today to those who travel the river, as he attempted to expedite his descent from the plateau's summit.

Powell links-up down river with the men, and with difficulty the party returned to survey the damage at the scorched campgrounds. Only a couple of pieces of bedding and clothing, some spoons, a basin, a tin cup, and a kettle was salvageable. The morning coffee, from that point on, would be in a bailing cup shared by two.

The next day's run was only five miles long, which they accomplished in only two hours. They have reached the point where the Yampa River joined the Green. Powell decided they all could use a lull from the river and besides this was a beautiful location for research. The other men were allowed to fish, which provided the men twenty trout and Bradley's ten-pound white fish for supper. The men also caught up on their mapping and letter writing. Oramel Howland wrote to the *Rocky Mountain News*:

Our trip thus far has been pretty severe: still very exciting. When we have to run rapids, nothing is more exhilarating. . . . and as a breaker dashes over us we shoot out from one side or the other, after having run the fall, one feels like hurrahing. A calm, smooth stream, running only at the rate of five or six miles per hour, is a horror we all detest now.⁴⁰

The next day found Powell climbing with Bradley, and demonstrates that not all of the excitement was found on the river. On June 18, Major Powell accompanied by Bradley decided to climb to the top of an eight hundred foot escarpment to inspect the expedition's route to the Uinta River. Powell led the way as they started up through a dry gulch to a narrow shelf, at which place the climbing proper began. The experienced climbers followed a path from one broken rock outcropping to the next crevice, and by such manner they climbed to over seven hundred feet. At this point they encountered a vertical precipice of slightly less than one hundred feet. Their only means to climb it was by scaling from one rock knob to the next. Powell shared what happened next in his journal:

I gain a foothold in a little crevice, and grasp an angle of the rock overhead, I find I can get up no farther, and cannot step back. . . . Standing on my toes, my muscles begin to tremble. It is eighty feet to the foot of the precipice. If I lose my hold I shall fall to the bottom, and then perhaps roll over the bench.

. . . at this instant it occurs to Bradley to take off his drawers, which he does, and swings them down to me, I hug close to the rock, let go with my hand, seize the dangling legs and, with his assistance, I am enabled to gain the top.⁴¹

So the expedition's leader was rescued in history's first Bungy jump.

The next eight days are quickly passed without incident as they passed through the tranquil Echo Park finally reached the Junction of the Uinta River with the Green. Their greatest hardship through the park had been the mosquitoes. They were so thick some men could not sleep at night from the hundreds of bites. Since leaving Lodore Canyon, the river had taken the party through Whirlpool and Split Mountain Canyons, also Echo and Island Parks, a distance of nearly one hundred miles.⁴² The first stage of their expedition was completed and ended safely.

Resupply at the Uinta Agency

After a few days of exploration and mapping by day and letter writing by night, Powell left with two others for Captain Pardyn Dodds' store at the Uinta Indian Agency. Walter, his brother and Andy Hall had left earlier to arrange an exchange with the Indians. Sergeant Bradley, the Howlands, Dunn, and Sumner remained behind to tend with boat repairs and fight mosquitoes. Bradley even records a conversation with one of these tormentors. Back at camp, Bradley volunteered to cook beans on the Fourth of July and demonstrated why he was not chosen as the cook. His recipe had greatly underestimated how the beans would swell, and resulted in twelve quarts of surplus.

Meanwhile, Powell's hike was no small task, he later wrote, "This morning, with two of the men, I start for the agency. It is a

toilsome walk, twenty miles of the distance being across a sand desert." There still was twenty miles of peaceful river valley leading to the agency. Here the men for the first time were able to mail letters home and to the various newspapers, and received some supplies to replace those lost earlier.

Unknown to the expedition, these letters disproved the awful announcements of Mr. John Risdon and a false Jack Sumner. Both men had deceitfully claimed to be the sole surviving member of the tragic Powell expedition. The matter became national news with every leading newspaper covering the disaster and the men's specious accounts of how it happened. The reports seemed credible to many, because a man's body was discovered in the river about two days journey from Green River City. Only his name was Mr. John Hook, who decided he could duplicate Powell's expedition in solo fashion. It was a bad decision. The *Detroit Press* and the *Chicago Tribune* sent reports to Emma Powell's home. They shared with her the gruesome details of how the entire party, save the survivor, perished in a giant whirlpool. She was pushed to identify which man was an impostor and who was not. Both men had shown themselves very capable of spinning a yarn and proving the inaccuracies in the other's account. Mrs. Powell stuck to the facts, as she was sure both men were fakes. In the end the reporters discovered both were impostors; one man a horse thief and confidence man; and the other man exposed as a liar. Major Powell's letters home and to several newspapers put an end to the matter.⁴³ The announcement of their death, to echo the words of a period author named Mark Twain, had been "a little premature."

While at the agency, Powell met with the Great Chief of the Utes, Tsauwiat, reputed to be more than one-hundred years old. Powell had a difficult time following his logic, and quickly decided the wreck of a man no longer bore the influence of year's past. Powell described him: "His skin is shrunken, wrinkled, and dry, and seems to cover no more than a form of bones."⁴⁴ The real person of power with the Ute people was his much younger wife, known as the "Bishop," and she was the only Indian woman Powell ever met who enjoyed the privilege of council leadership. Powell described her as "a very garrulous old woman; she exerts a great influence, and is much revered. She seems very much younger than her husband, and, though wrinkled and ugly, is still vigorous."⁴⁵ Powell ever the good scientist with frank and honest assessment, should be glad the "vigorous" Bishop never read his book as she may not have appreciated his observations.

Frank Goodman, who was uncharacteristically enthusiastic to make the long hike to the agency, announced to Powell his intention to remain at the Ute Agency. Frank Goodman, having lost all his gear in the boat wreck had apparently lost his heart for adventuring as well. Powell wrote of his departure, "He has seen danger enough. . . . As our boats are rather heavily loaded, I am content that he should leave, although he has been a faithful man."⁴⁶

Ever the careful and meticulous person, Powell had the crews lay out all the supplies brought with them and combined with the meager three hundred pounds of supplies gained at the agency. A careful inventory of the goods revealed three fifty pound bags of flour were moldy, two hams rancid, and some of the beans wormy. Powell told the

men if they were to proceed they must travel as rapidly as the river would permit, as only four months of rations remain. This would require reduced rations. The men had some anxiety over the rations but to a man voted to continue on with the expedition. Powell ordered them to repack the gear and dictated the new manning for the boats. Seneca Howland would join Bradley and Walter Powell's crew on the *Maid of the Canyon*, while Oramel Howland shifted to the *Kitty Clyde's Sister*, crewed by Billy Rhodes and Andy Hall.

Powell's leadership methods adjusted somewhat at this point with his transition to a participating style. After gathering all the facts relevant to their supply situation, Powell presented a clear and honest assessment to the men about their current situation. He then involved his subordinates in the decision whether to continue or not the expedition by first listening to their concerns and placing the matter to a vote. These actions provided the Powell Expedition with the necessary unity of effort to persevere through the difficult situations awaiting the explorers. Major Powell's leadership fulfilled the three key aspects of what a leader must do: provide purpose, direction, and motivation. He had clearly articulated his intent to continue on with the journey. Furthermore, his calm and well-reasoned decisions to date, provided confidence in the men that they could complete the mission. Lastly, Powell motivated his men by making their work meaningful and by showing a sincere concern for them.

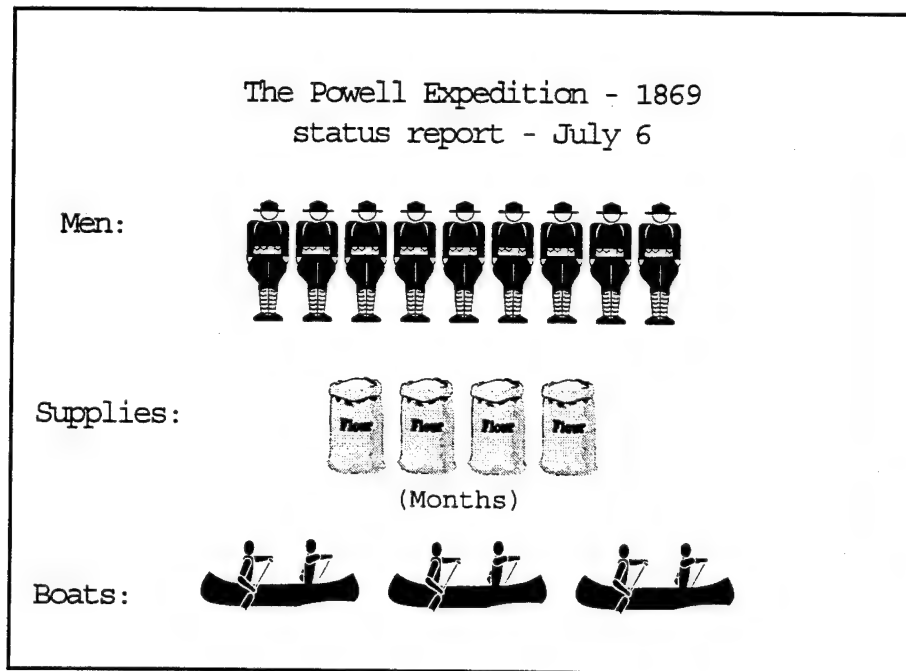


Fig. 3. Status report for the Powell Expedition on July 6, 1869.

The Expedition Resumes

On July 6, the party pushes their boats out in the river and set out from the last known civilization for quite some distance; according to the best Army maps of the area it was nearly eight hundred miles. The old Bishop at the reservation had reminded the Major of their legend, and how the river disappeared to the under world from which no man could escape. He probably wondered if the legend was correct. For three of the men now busy with preparations for the first rapids, the Indian's legends were right.

The first day back in the river passed without incident, and the following afternoon the men reached an island where Powell hoped to up his final stores. Apparently unknown to the others, Powell had met a hunter and Indian trader named Johnson at his camp in White River

Valley. Johnson invited Powell to help himself to the vegetables on the island when he passed by the following summer. Being still too early for corn, they took a handful of beets and young carrots, and potato greens, which Andy Hall assured the group were "good eating." Naturally today they are known to contain high levels of nicotine and narcotics. The expedition almost comes to an anticlimactic end only two days after setting out. Hall's special stew for dinner was quickly eaten by all except Bradley and Howland, who could not get by the bitter taste of the young greens. The boats put out into the river again for the afternoon's journey, but after only one mile they are forced to beach their boats. One after another, the brave conquerors of the river become violently ill, felled by potato greens. Severe vomiting soon followed as the men rolled around on the shore with intense abdominal pain. Powell alarmed by the symptoms, prescribes emetics for each man, which took effect and relieved the pain. Jack Sumner had two comments in his diary about this incident, first "Potato tops are not good greens" and finally, "We all learned one lesson--never to rob gardens."⁴⁷ The men quickly recovered from the effects and accomplished a remarkable progress of thirty-seven miles by nightfall.

For the next week they are rapidly swept through Desolation Canyon by the river. The following days Gray, Labyrinth, and Stillwater Canyons are passed through again without any serious mishaps, except for two misadventures.

By this time the men had grown to admire and at times resent the Major's untarnished self-assurance in running the rapids. His boat, the *Emma Dean* had yet to have a serious mishap, when on July 11, the

Major met his match in Desolation Canyon. The men silently enjoyed the misfortune when his boat, passed through a chute and was suddenly swamped tossing the unprepared Powell safely out in the river. The loss was substantial though as he had failed to stow irreplaceable and expensive gear once again. The river had consumed two rifles, costing more than three hundred dollars each, one of the barometers and eight hundred dollars in watches. The Major's bedding also disappeared under the water. Powell's account places all the blame on his overconfident assessment and details the actual loss.⁴⁸

The following day was the *Kitty Clyde's* opportunity as the boat was sucked in by tumultuous waves. Bradley, upset by a sudden swell, lost his balance and found himself in a precarious position. Powell records what happened next, "Bradley is knocked over the side, but his foot catching under the seat, he is dragged along in the water, with his head down: making great exertion, he seizes the gunwale with his left hand, and can lift his head above the water now and then. . . ." ⁴⁹

Powell watched helplessly as his brother's boat headed for a jagged wall. When to everyone's amazement, Walter Powell with six strong pulls at the oars brought the boat away from the wall, then reached down and pulled Bradley in. The men that night had to wonder about their future; Goodman, the Howlands, Major Powell, and Bradley had all come close to death. What could happen next?

Endnotes

¹Frederick S. Dellenbaugh, The Romance of the Colorado River (New York: Knickerbocker Press, September 1904), 377.

²Ibid., 377.

³John Wesley Powell, Reports of Explorations in 1873 of The Colorado River of The West and Its Tributaries (Washington: Government Printing Office, 1874), 5.

⁴Dellenbaugh, 379.

⁵David Lavender, "First Conquest of the Colorado," National Parks 60, no. 5-6, (May-June 1986): 17.

⁶Peter Miller, "Vision of the West," National Geographic 185, no. 4, (April 1994): 100.

⁷Miller, 101.

⁸Dellenbaugh, 379.

⁹Richard Monastersky, "What's New in the Ol' Grand?" Science News 132, no. 25&26, (December 1987): 392.

¹⁰Dellenbaugh, 380.

¹¹Miller, 100.

¹²Lavender, 17.

¹³Ibid., 18.

¹⁴William H. Goetmann, Exploration & Empire (New York: Vintage Books, 1966), 541.

¹⁵The War of the Rebellion: A Compilation of the Official Record of the Union and Confederate Armies, 128 vols. (Washington: Government Printing Office, 1880-1901) series 1, vol. 31, 3:564-570. Record of Maj. Gen. William T. Sherman's Troop list for the Department of the Tennessee, 31 December 1863. Summary of the Principal Events, 3 February - 6 March 1864 found in series 1, vol. 32, 1:164-171.

¹⁶Miller, 100.

¹⁷Lavender, 18.

¹⁸Lavender, 17.

¹⁹Ibid.

²⁰Ibid., 18.

²¹Unless otherwise stated, this account is based on John Wesley Powell's Explorations of the Colorado River of the West and Its Tributaries, and William C. Darrah's Powell of the Colorado, 120-143. Darrah's book includes the edited texts of the George Bradley Journals, the letters of W. H. Powell to the *Chicago Evening Journal*, the letters of O. G. Howland to the *Rocky Mountain News*, J. C. Sumner's Journals, John Wesley Powell's Journals and field geological notes. The original manuscript of the George Bradley Journals are in the Library of Congress. A copy of J. C. Sumner's Journals are in the Stanton Collection of the New York Public Library. An additional copy of Sumner's journals and original notes are available at the Smithsonian Institution.

²²Monastersky, 392.

²³Miller, 102.

²⁴Monastersky, 392.

²⁵Ibid.

²⁶Miller, 102.

²⁷William C. Darrah, Powell of the Colorado (Princeton: Princeton University Press, 1951), 122.

²⁸Dan Murphy, John Wesley Powell - Voyage of Discovery (Las Vegas, NV: KC Publications, 1992), 9.

²⁹John Wesley Powell, personal record, quoted in Dan Murphy, John Wesley Powell - Voyage of Discovery, 11.

³⁰John Wesley Powell, Explorations of The Colorado River of The West and Its Tributaries, 22.

³¹Murphy, 11.

³²Edwin Corle, Listen, Bright Angel (New York: Duell, Sloan and Pearce, 1946), 116.

³³John Wesley Powell, Explorations of The Colorado River of The West and Its Tributaries, 24.

³⁴Darrah, 125.

³⁵John Wesley Powell, Explorations of The Colorado River of The West and Its Tributaries, 25.

³⁶Ibid., 26.

³⁷G. Bradley, MS, Diary, June 9, 1869.

³⁸John Wesley Powell "The 1869 Colorado Expedition," The Chicago Tribune, referenced by William H. Goetzmann, Exploration & Empire, (New York: Vintage Books, 1966), 545.

³⁹John Wesley Powell, Down the Colorado, edited by Eliot Porter (New York: E. P. Dutton & Co., 1969), 50. The Mess kit was recovered in the water on their next expedition two years later.

⁴⁰Oramel Howland letter "The 1869 Colorado Expedition," to The Rocky Mountain News, presented by Mary A. Fraser, In Search of the Grand Canyon -- Down the Colorado with John Wesley Powell (New York: Henry Holt and Company, 1995), 25.

⁴¹John Wesley Powell, Down the Colorado, edited by Eliot Porter, 53 and 54. Bradley records this incident occurred on July 8, and the summit was 1,598 feet high; he measured the altitude using a barometer.

⁴²George W. James, In and Around the Grand Canyon (Boston: Little, Brown, and Company, 1900), 27.

⁴³See the *Omaha Republican*, July 3, 1869, the *Chicago Tribune*, July 2-10, and the *New York Times*, July 3-11, 1869.

⁴⁴This was the famous Indian chief so important to the Mormons when they came out West. His efforts allowed them to learn how to survive back in the early 1850's.

⁴⁵John Wesley Powell, Down the Colorado, edited by Eliot Porter, 62.

⁴⁶John Wesley Powell, Explorations of The Colorado River of The West and Its Tributaries, 43.

⁴⁷John Wesley Powell, Down the Colorado, edited by Eliot Porter, 66. Sumner's diary entrees are recorded by Powell. His erroneous comment on the theft was quickly forgotten when the starving men found an Indian squash garden in the Grand Canyon forty-five days later.

⁴⁸John Wesley Powell, Down the Colorado, edited by Eliot Porter, 69.

⁴⁹Ibid., 70.

CHAPTER FOUR

THE COLORADO RIVER EXPEDITION

On July 16, the party was just beginning to exit Stillwater Canyon, when all of the sudden a large river entered from the left. It was the much anticipated Grand River (now known in its entirety as the Colorado River). Powell ordered the men to stop and undertake setting up camp. There was much work to accomplish before the expected solar eclipse on August 7. The eclipse was significant to Powell because it would provide an exact time measurement and therefore enable a precise mapping of the location.¹ The Green River was about eighty yards wide at this point and the Grand River about one hundred and twenty-five yards across. The river's depth was a uniform ten feet deep, but showed ample flood marks indicating a depth of three times the present. They traveled a total of two hundred eighty-six miles from their last resupply break to reach this point with no loss of life.²

The next morning Powell had the rations carefully measured to verify their capability to remain there until August 7. The nearest known outpost was over one hundred and twenty-five miles away so resupply was impossible. A careful screening of the lumpy and molded flour with mosquito netting, revealed only six hundred of the eight hundred pounds were salvageable. This loss gave Powell only one prudent choice. Therefore he changed his plan. A detailed measurement of only

the longitude and latitude was ordered, because it would provide the location of the junction. Previous estimates had placed it over one hundred miles to the East. The short delay allowed them to produce the necessary measurements and carefully store the remaining provisions; the expedition continued on July 21.

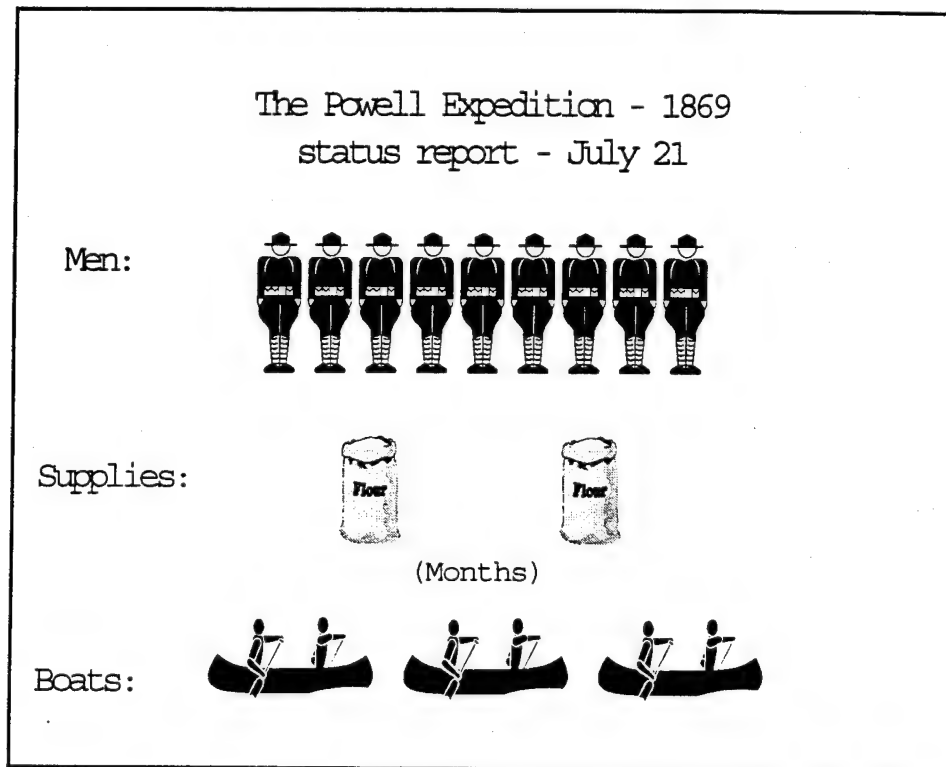


Fig. 4. Status report for the Powell Expedition on July 21, 1869.

Leadership Analysis

After having spent almost two months on the Green River and in that time travel almost 538 miles without loss of life was an undeniable accomplishment for the men. They had lost one boat and one man had deserted but they had reached a point no other expedition had reached.

Powell's cautious approach, pension for details, and military-style leadership which seemed so uncalled-for earlier had served them well. From this point on, the criticism of his peremptory leadership methods abated. Each man began to realize that they were no longer an inexperienced menagerie of men, composed of trappers, veterans, and adventures but a professional expedition with an important purpose. They were changing the map of America.

A Brief Pause Is Required

After four days of rough travel the seams of the boats began to leak for want of sealer. All involved were impatient to continue but knew the necessity to pause for the repairs. On July 26, a lateral off shoot was discovered with a narrow beach and calm lagoon. The wide shore and still waters were the mark of a perfect location for a maintenance halt. Walter, Bradley, Seneca, and Andy followed the Major in the long climb out of the canyon to find pitch for the boats. The climb was difficult and the heat distressing as one by one the group members faltered and return to camp. Only the Major was able to complete the climb out of the canyon. His reward, two pounds of resin from the pinon pines. Since the other members had resigned from the excursion and Powell only had one arm, necessary for the descent to camp, he improvised by slicing the sleeves from his shirt. Next, with the pitch placed in the sleeves, the ends were tied off, and Powell returned to camp.

This small example demonstrated his self-discipline to see an important task through to the end. A leader's staying power as well as

an extemporaneous nature is essential to his credibility. Powell's spur-of-the-moment creation of a makeshift rucksack was more than a man who refused to allow his handicap to get in the way. It represented determination and strong problem-solving skills.

While in the vicious Cataract Canyon, the men spotted a rarity, a flock of mountain sheep. Two were dropped by careful rifle shots, turning the evening meal into a real feast. After supper Billy Rhodes was seen by Powell fiddling with the sextant, "a strange proceeding for him" the Major wrote. When asked by Powell what he was planning to do with the instrument, Billy told Powell he was "trying to find the latitude and longitude of the nearest piece of pie."³

For almost two weeks the men struggled their way through the Cataract Canyon, with only one short break for an altitude measurement. Then just as suddenly as it had begun, towards evening on July 28, the men exited from the massive rock pinnacles at the canyon's back door. They had just run one hundred sixteen miles since leaving the junction of the Green and Grand Rivers. This represented to the Powell expedition eighteen portages and forty-five rapids run. A completely unexpected river is encountered on the right, so Powell called up to Dunn and queried if it looked like a good trout stream. Jack Sumner yelled back, "She's a Dirty Devil!"⁴ And so the last river awaiting discovery in the United States is named for its foul smell and muddy waters. The dirty river had three principle tributaries, later named Muddy, the Stinking, and the Starvation. Later attempts to rename the river Fremont never succeeded, she had been named for what she was, a worthless Dirty Devil.⁵ Powell also noticed the distant mountains from

which the river flowed and named them the Henry Mountains, the last uncharted mountains in the United States.

On July 30, Powell had the men set up camp at the junction of the San Juan River. The river was supposedly a fantastic stream, and selected as a future center of the Mormon development, but in reality it was thirty yards wide, only fifteen inches deep and dirty. Powell noticed large boulders of granite and marble lay ahead. He told the men that those types of rocks represented trouble and decided to let the men rest for two days while he reconnoitered the area. Bradley was not thrilled by the delay, even though they shot a goat for dinner on the first night. His journal records:

August 2nd: doomed to be here another day, perhaps more than that for the Major has been taking observations ever since we came here. . . . He ought to get the latitude and longitude of every mouth of a river not known before and we are willing to face starvation if necessary to do it but further than that he should not ask us to wait, and he must go on soon or the consequences will be different from what he anticipates.⁶

By August 4 they reach the area where the present day Navajo Bridge crosses the troubled waters of the Colorado and finds one of the rare areas of the river not enclosed by perpendicular walls. It is here, at the point where the Little Colorado empties into her larger sibling that they made camp. Before them lay the great door of the Grand Canyon, with its walls already over three thousand feet above the river's edge. The morale of the men plummeted as they setup camp and stared at what lay ahead, especially as they reflected on the ordeal already suffered. Powell ordered them to organize the meager supplies in an orderly fashion to allow a complete inventory of what remained. It was noted by all, their chief staples of flour and bacon was nearly

expended and molding. The "mountain men" in the group began to complain and grew impatient with Powell over his insistence on stopping for scientific observation, mapping, and fix their position by means of astronomical observation. Their preferred course of action was to stay the course, but to do so in the most expeditious manner possible.⁷

Notwithstanding, Powell's optimism and never faltering enthusiasm caused them to stay with the group for the time being and follow Powell's plan. Still, before them lay a stretch of absolutely unknown river and unrevealed canyons, with only a scientific guess as to the distance yet to run. The distance to safety was in fact somewhat over two hundred miles, with long expanses of plumb rock walls reaching from the sky above, plunging to the river's bottom. In the solitude of the canyon that afternoon, they all perceived that unless they got through the canyon, their chance of survival was remote.⁸ Certainly this realization was reflected by Powell's report for that day when he wrote:

We are now ready to start on our way down the Great Unknown. Our boats, tied to a common stake, are chaffing each other, as they are tossed by the fretful river. They ride high and buoyant, for their loads are lighter than we could desire. We have but a month's rations remaining. The flour has been resifted through the mosquito net sieve; the spoiled bacon has been dried, the worst of it boiled; the few pounds of dried apples have been spread in the sun, and reshrunk to their normal bulk; the sugar has all melted, and gone on its way down the river; we have a huge sack of coffee. The lightening of the boats has this advantage: they will ride the waves better, and we have but little to carry when we make a portage. We are three quarters of a mile in the depths of the earth, and the great river shrinks into insignificance, as it dashes its angry waves against the walls and cliffs, that rise to the world above. . . . We have an unknown distance yet to run; an unknown river yet to explore. What falls there are, we know not; what rocks beset the channel we know not; what walls rise over the river, we know not.⁹

Powell, during the next few days, measured the temperature at 115 degrees in between the frequent rain storms.¹⁰ The walls in this area pressed narrowly upon the river, and offered no space for portage. The thousand foot climb to the first ledge made it impossible to carry the boats around the approaching falls, which dropped eighty feet in less than five hundred yards. So without hesitation, they pushed off the rocks into the swift water and through a series of chutes that plummeted the boats ungoverned into the depths below. Daily each boat suffered repeated fillings of water and capsizing, preventing the water soaked food from drying. After only a few day's time, the bacon completely spoils and is discarded. Furthermore, while discarding the bacon, a crew member accidentally threw the saleratus, used for leavening in the bread, into the river and it is lost.¹¹ On August 11 Sergeant Bradley wrote in his diary:

If Major does not do something soon I fear the consequences, but he is content and seems to think that biscuits made of sour and musty flour and a few dried apples is ample to sustain a laboring man. If he can only study geology he will be happy without food or shelter but the rest of us are not afflicted with it to an alarming extent.¹²

Powell's report from around the same time seemingly confirmed Bradley's biting comments:

We have discovered a stream, entering from the North, a clear, beautiful creek, coming down through a gorgeous red canon. We land, and camp on a sandy beach. . . . The little affluent, which we discovered here, is a clear, beautiful creek, or river, as it would be termed in this western country, where streams are not abundant. We have named one stream, away above, in honor of the great chief of the "Bad Angels," (Dirty Devil) and, as this is in beautiful contrast to that, we conclude to name it "Bright Angel."¹³

Early the next morning, Powell and the entire party explored the small canyon created by the newly christened Bright Angel creek and

discovered the foundations to several Indian tribes. They busied themselves for the remainder of the day by sawing oars and enjoying the location. Certainly this location, which is a popular destination to this day, must have been a respite from the ordeal they had faced to that point. The next day, Powell surveyed the remaining supplies and a cold reality grabbed the ever-optimistic Powell. His August 17 report confirms this change in purpose:

We have only musty flour sufficient for ten days, a few dried apples, but plenty of coffee. We must make all haste possible. If we meet with difficulties, as we have done in the canon above, we may be compelled to give up the expedition, and try to reach the Mormon settlements to the North. Our hopes are that the worst places are passed, but our barometers are all so much injured as to be useless, we have lost our reckoning in altitude, and know not how much descent the river has yet to make.

The stream is still wild and rapid, and rolls through a narrow channel. We make but slow progress, often landing against a wall, and climbing around some point, where we can see the river below. Although very anxious to advance, we are determined to run with great caution, lest, by another accident, we lose all our supplies. How precious that little flour has become!¹⁴

The elements had certainly taken their toll on the men's gear and greatly compounded their misery. Powell described how one hour they were chilled to the bone by drenching rains followed immediately by the sunshine. The sun's power would drive the mercury above 100 degrees in only a short time. Powell wrote of the gear's condition, "The little canvas we have is rotten and useless, the rubber ponchos, have all been lost; more than half the party is without hats, and not one of us has an entire suit of clothes, and we have not a blanket apiece."¹⁵ The rain, which continued for several days, fell so hard some evenings that it extinguished the night's warming fire leaving the men to sit on rocks, shivering until the next day's toil began.

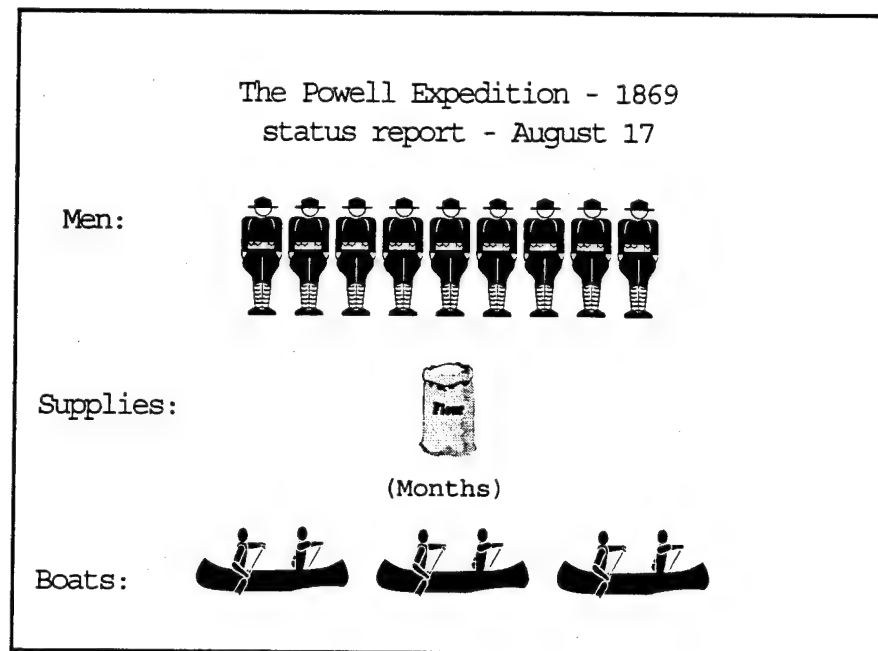


Fig. 5. Status report for the Powell Expedition on August 17, 1869.

Through August 26, the weary expedition had traveled roughly a little more than two hundred miles from the point where the two Colorados join and was nearing the Canyon's end marked by open country and more importantly human civilization. They did not, unfortunately, know how close to the end they were, because of the severe damage the instruments had suffered.¹⁶ It was this day, with a meager five days' rations remaining, that they discovered an Indian garden. The vegetable patch, perched on the side of the cliff, had numerous rows of healthy corn but it was immature and not sufficiently advanced for harvest, but they found dozens of fully developed squash plants. The men hurriedly stole ten squashes and quickly pushed on before discovery. Powell justified it by "excusing ourselves by pleading our great want." After

traveling a short distance, they stopped to dine, says Powell concerning the meal, "What a kettle of squash sauce we make!" "True, we have no salt with which to season it, but it makes a fine addition to our unleavened bread and coffee. Never was fruit so sweet as these stolen squashes."¹⁷

The party's brief respite quickly vanished on August 27 as they reach what appeared as the most formidable obstacle yet encountered. As they stopped the three remaining boats in a crag of rocks jutting out into the swift stream, they began to survey, looking for the best method around the severe rapids and falls. Powell quickly scaled up a granite face to a ledge set with crags and pinnacles. His course appeared, if followed, to allow a full view of their obstacles in the river below. In his eagerness to view the roaring falls below Powell found himself once again trapped on the canyon's wall. Powell wrote of the ordeal, "Finding I am caught here, suspended four hundred feet above the river, into which I should fall if my footing fails, I call for help."¹⁸ The men finally arrived to rescue Powell, carrying the large oars from the boats. Carefully they jammed the first oar's edge into a crevice below Powell to create an artificial ledge. The second oar was pushed into the rock beyond him in such a manner that they could press him against the wall. Together these two oars allowed their leader to liberate himself.

They soon discovered to their dismay, that the vertical walls would not permit any chance for a portage. The walls out of the canyon could, with great difficulty, be climbed and eventually lead to the flat

plateau above. But to what advantage? They all understood the nearest settlements lay far north, across the unknown desert plateau.¹⁹

The Separation

Major Powell gave careful consideration of the options available, as he perceived he had reached one of those momentous forks of life. Returning to the men he announced his decision to continue on the river. The only chance of making it through the river was by means of lining the boats down the first falls, running the chute through the large boulders and falls of the second. After this descent, Powell observed it would then be necessary to then row furiously to avoid being dashed against the great rocks at the bottom by the tumultuous current. It was by far the darkest night of the trip, for after supper, some of the members refused to follow Powell's leadership any longer.

Captain O. G. Howland, perhaps the best educated man of party, argued against continuing and proposed a route to climb out of the canyon.²⁰ Powell refused to change his mind at which point he learns that not only Howland, but also his brother and William Dunn refused to continue. That evening while the others slept Powell calculated with a sextant they have only somewhere between forty-five and eighty miles left until the Virgin River is reached. Powell awakened Howland to divulge through a sand sketch map, their estimated location and the location of several Mormon camps. The Captain was unimpressed and refused to change course, returning to camp for shut-eye. But Powell could not find rest, pacing along the river's edge he began to question the wisdom of continuing. Powell considered the recent rains and the

probability that water was still standing in small holes across the desert, and contemplated quitting for a brief time. He returned to the boats, and personally inventoried the remaining rations. Now he had complete awareness of the expedition's disposition. His confidence uplifted. Once pass the obstacles before them, they could complete the entire journey.²¹ Powell's journal recorded the variables he considered in his personal decision to press on in defiance of the danger: "for years I have been contemplating this trip. To leave the exploration unfinished, to say that there is a part of the canyon which I cannot explore, having already almost accomplished it, is more than I am willing to acknowledge, and I determine to go on."²²

John awoke his brother Walter Powell, and told him of Howland's determination to walk out; Walter promised to remain by Powell's side for the entire journey. Hawkins, the cook, who was rising to prepare breakfast, agreed with Powell's decision to continue. Sergeant Bradley, Sumner, and Hall without hesitation, agreed to go on. The breakfast meal was eaten in an unaccustomed silence, with the only sound coming from the roaring Colorado. Powell asked once more of O. G. Howland to reconsider, if climbing out is the best option. Captain Howland and Dunn thought it was, even as the younger Howland attempted to persuade them otherwise.

Powell, with only six men remaining, was forced to leave the *Emma Dean*, named after his wife, because of insufficient crew members. Powell wrote in his journal that he hoped they would change their minds, and thus decided to leave a large amount of equipment with the boat for that purpose. They divided the rifles and journal records, but

Howland's group refused to split the rations. Nonetheless, Cook Hawkins quickly prepared a large tin of biscuits, while the rest of the group lined two boats down twenty-five feet of rocks of the first falls. Hawkins quietly slipped out of camp to secretly place the biscuits on the path for the Howlands and Dunn to find later. It was to be there last supper.

O. G. Howland for the final time tried to convince Major Powell of the foolhardiness of continuing through falls and rapids such as those awaiting Powell's men. He warned that a few miles of such rapids would surely destroy the remaining rations if not the boats too. Each party believed the other was conceivably committing a fatal mistake. Each group bid the other a solemn farewell, with more than a few tears shed.²³ Howland and the other two men departed at, what Powell labeled "Separation Rapids," leaving Powell and his five remaining crew members to take their chances.

Bradley wrote of the incident: "The three boys stood on the cliff looking at us and having waved adieu we dashed through the next rapid and then in to an eddy where we stopped to catch our breath and bail out the water from our sunken boats. We never had such a rapid before but we have run a worse one this afternoon."²⁴ Powell directed the boats to stop at the first safe location past the series of rapids and cataracts. A signal shot echoed through the canyon in hopes Howland and crew would join by way of the remaining boat. After waiting two hours for a response, Powell continued the journey.²⁵

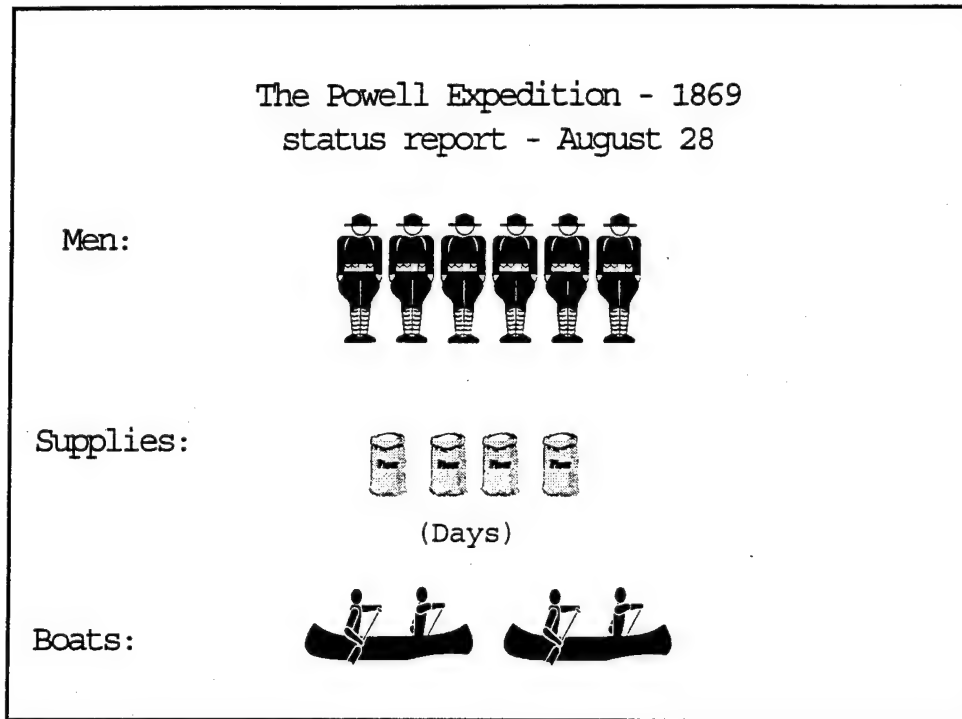


Fig. 6. Status report for the Powell Expedition on August 28, 1869.

Less than seven miles below Separation Rapids they encountered what would become their last serious challenge--a vicious series of cataracts and falls. Powell and Bradley both agreed they were the worst: "the river tumbles down, over and among the rocks, in whirlpools and great waves, and the waters are lashed into mad, white foam."²⁵ Bradley's actions, alone in the first boat are incredible. Powell rendered the following account:

The boat is in very swift water, and Bradley is standing in the open compartment, holding out his oar to prevent her from striking against the foot of the cliff. . . . Just at that moment I see him take his knife from its sheath, and step forward to cut the line. He has evidently decided that it is better to go over with the boat as it is, than to wait for her to be broken to pieces. As he leans over, the boat sheers again into the stream, the stem-post breaks away, and she is loose. With perfect composure Bradley seizes the great scull oar, places it in the stern rowlock. And pulls with all his power (and he is an athlete) to turn the bow of the boat down stream. One, two strokes he makes, and a third just as she goes over, and the boat is fairly turned, and she goes down almost

beyond our sight, though we are now more than a hundred feet above the river. Then she comes up again, on a great wave, and down and up, then around behind some great rocks, and is lost in the mad, white foam below. We stand frozen with fear, for we see no boat. Bradley is gone, so it seems. But now, away below, we see something moving out of the waves. It is evidently a boat. A moment more, and we see Bradley standing on deck, swinging his hat to show that he is all right.²⁷

Bradley's boat was trapped in a whirlpool and began to spin out of control. Powell looked over at Rhodes, who was holding the rope and stern-post that once belonged to the *Maid of the Canyon*. Powell realized with damage that severe, the boat would not last long. He quickly ordered his brother and Sumner to pass along the cliff with rope to aid Bradley if they can reach him. Meanwhile Powell directed Rhodes and Hall to climb into the remaining boat, *Kitty Clyde's Sister* with him. They pushed off and away they went over the falls. Powell's journal provides a vivid description: "Another great wave strikes us, the boat rolls over, and tumbles and tosses, I know not how. All I know is that Bradley is picking us up."²⁸ They soon are all back safely in the boats and wait for Walter Powell and Sumner to arrive after a most arduous climb along the cliffs.

Exit from the Grand Canyon

They continued to run the river through easy rapids until nightfall as they passed by the last of the granite walls. Starting early the next morning, they noted the river was still swift, but the rapids were greatly thinned. Around twelve o'clock on August 29, they emerged from the Grand Canyon of the Colorado into an expansive valley. They soon recognized the distant mountains descending to the river below as the Grand Wash. Powell and what remained of his expedition was once

again in the "known" world. Bradley's wrote of his feelings at that moment, "All that we regret now is that the three boys who took to the mountains are not here to share our joy and triumph."²⁹ Powell's journal echoed the same sentiments.

Ever before us has been an unknown danger, heavier than immediate peril. Every waking hour passed in the Grand Canyon has been one of toil. We have watched with deep solicitude the steady disappearance of our scant supply of rations, and from time to time have seen the river snatch a portion of the little left, while we were hungered. And danger and toil were endured in those gloomy depths, where oftentimes the clouds hid the sky by day, and but a narrow zone of stars could be seen at night. Only during the few hours of deep sleep consequent on hard labor, has the roar of the waters been hushed. Now the danger is over; now the toil has ceased; now the gloom has disappeared; now the firmament is bounded only by the horizon; and what a vast expanse of constellations can be seen.

The river rolls by us in silent majesty; the quiet of the camp is sweet; our joy is almost ecstasy. We sit till long after midnight, talking of the Grand Canyon, talking of home, but chiefly talking of the three men who left us. Are they wandering in those depths, unable to find a way out? Are they searching over the desert lands above for water, or are they nearing the settlements?³⁰

They traveled forty-two miles that day and with each mile Powell's sternest and determination seemed to melt. Unquestionably, he had assumed a commander's role very familiar to Powell from his Civil War years. As the commander, Powell had been strict when required, uncompromising, and at times even indifferent. Nonetheless, the expedition would have certainly failed without discipline and unity of effort provided by Powell's exercise of command.³¹

The men took off at sunrise their supplies exhausted, as they traveled, some twenty miles, a band of naked Indians from the Paiutes was coaxed to the river bank. Powell spoke in their simple native language, and although he received no food, he learned the Virgin River was only a few miles ahead. On they rowed down the slow flowing

Colorado, making twenty-six miles of progress. Just after noon the men arrived at the junction of the two rivers. There in the river stood four men pulling a seine through the water. The group consisted of a Mormon named Asa, his sons, and an Indian, with instructions from Brigham Young to watch the river for wreckage or bodies from the lost Powell Expedition.³²

Ten men had plunged into the unknown back at the Green River on the May 24, 1869. On August 30 six came out. The Major had kept on and accomplished the daring mission he had placed his efforts toward, in similar fashion to his siege work at Vicksburg, seven years earlier. It was only through Powell's own resolution and the loyalty of the other five men that kept the expedition from ending in failure so close to the end, at Separation Canyon. Powell had walked this path before in the Hornet's Nest at Shiloh, when he rallied the men to drive back the assault by General Johnston's rebels. It had cost him his right arm. This time, with word arriving, after a two week search, from St. George, capital of Brigham Young's southern province, the cost was higher. Word came of the fate of Dunn and the Howlands. They had only made it to the top of the canyon wall and a short distance into the plateau forest. Their naked bodies were discovered next to a water hole, filled with Shivwits arrows.³³

A year later, Powell not satisfied by the account, visited the very tribe who perpetrated the murders. He patiently listened to the Indians tell of three miners who killed a squaw and then escaped. Shortly afterwards Powell's men were captured by Shivwit braves. Chief Chuar, of the Kaibabits and several Shivwit braves admitted freely they

had killed Powell's men because of their unbelievable story--traveling on the river of the canyons. They told Powell if they had known the truth the killing would not have occurred. Powell satisfied by the story prepared to leave.³⁴ Chief Chuar, stopped Powell, and offered peace to Powell and his men, and also gave Powell the Indian name Ka-pu-rats, meaning one-arm-off. Jacob Hamblin, Powell's Mormon guide, observed how Powell acted with great energy and was fearless before the Indians, and at the same time gentle and kind with their women.³⁵ He must have been impressed with speed and easy he gained friendship with the reclusive tribe.

The last great exploration into the unknown canyon country of the West was now completed. The Grand Canyon had been conquered, and with it ended the heroic expeditions of North America by Americans initiated fittingly by Army Officers: Captain Meriwether Lewis and Lieutenant William Clark. Major Powell returned to the East as a national hero. Public interest aflame by the reports of Powell's demise on the Colorado, had focused on the true outcome of the expedition. Powell was able to capitalize on this opportunity with passionate public lectures and an ability to produce a gripping narrative account for Congress. These efforts quickly brought government grants and an outpouring of support for his return expedition in 1871-1873, to conduct a detailed scientific study West of the hundredth meridian.

Endnotes

¹Dan Murphy, John Wesley Powell -- Voyage of Discovery (Las Vegas, NV: KC Publications, 1992), 29.

²George W. James, In and Around the Grand Canyon (Cambridge, MA: University Press, John Wilson & Son, 1900), 27.

³John Wesley Powell, Explorations of The Colorado River of The West and Its Tributaries, (Washington: Government Printing Office, 1875), 66.

⁴John Wesley Powell, Down the Colorado -- Diary of the First Trip Through the Grand Canyon, ed. Eliot Porter (New York: E. P. Hutton & CO., Inc., 1969), 91.

⁵Edwin Corle, Listen Bright Angel (New York: Duell, Sloan and Pearce, 1946), 119.

⁶George Bradley's journal, found in Powell of the Colorado, William Darrah, 135.

⁷Joseph W. Krutch, Grand Canyon -- Today and All Its Yesterdays (New York: H. Wolff, 1958), 101.

⁸*Ibid.*, 102.

⁹John Wesley Powell, Down The Colorado -- Diary of the First Trip Through the Grand Canyon, 107.

¹⁰John Wesley Powell, Explorations of The Colorado River of The West and Its Tributaries, 89.

¹¹*Ibid.*, 88.

¹²Joseph W. Krutch, 103.

¹³John Wesley Powell, Explorations of The Colorado River of The West and Its Tributaries, 86.

¹⁴*Ibid.*, 88-89.

¹⁵*Ibid.*, 89.

¹⁶Joseph W. Krutch states that all the instruments had been damaged beyond use. In fact on the evening of August 27 Powell records the following: "For the last two days, our course has not been plotted. I sit down and do this now, for the purpose of finding where we are by dead reckoning. It is a clear night, (A requirement for using this less precise method -- author) and I take out the sextant to make observation for latitude, and find that the astronomic determination agrees very

nearly with that of the plot--quite as closely as might be expected, from a meridian observation on a planet. In a direct line, we must be forty-five miles from the mouth of the Rio Virgen. If we can reach that point we know there are settlements up that river about twenty miles. This forty-five miles, in a direct line, will probably be eighty or ninety in the meandering line of the river." Powell's rough estimate would later prove fairly close, and actually over-estimated the distance because of fewer bends in the river than they had thus far seen. Powell shows the results to Howland who afterwards is still set on leaving.

¹⁷John Wesley Powell, Explorations of The Colorado River of The West and Its Tributaries, 96.

¹⁸Ibid., 97.

¹⁹Joseph W. Krutch, 104.

²⁰Ibid., 105.

²¹John Wesley Powell, Explorations of The Colorado River of The West and Its Tributaries, 98. Powell's dead reckoning also indicated the Mormon camps were seventy-five miles across the desert. Powell writes: "I am not sure that we can climb out of the canyon here, and, when at the top of the wall, I know well enough of the country to be certain that it is a desert of rock and sand."

²²Ibid., 99.

²³John Wesley Powell, Down The Colorado -- Diary of the First Trip Through the Grand Canyon, 100. Joseph W. Krutch (see pages 104 & 105) and many other authors record this separation as one of treason or cowardliness on the part of Howland's group, yet neither John Wesley Powell nor Sergeant Bradley saw it that way. It was a separation and a decision carefully considered by the leaders of both parties and supported, as feasibly as possible by the opposing viewpoint.

²⁴Joseph W. Krutch, 105. Clearly this supports the theory of concern but not the feeling of desertion nor abandonment by Howland's group.

²⁵John Wesley Powell, Down The Colorado -- Diary of the First Trip Through the Grand Canyon, 100.

²⁶Ibid. Bradley's actions, alone in the first boat are incredible. Powell renders a gripping account in his journal from pages 101 to 103.

²⁷John Wesley Powell, Down The Colorado -- Diary of the First Trip Through the Grand Canyon, 102.

²⁸Ibid.

²⁹Joseph W. Krutch, 106.

³⁰John Wesley Powell, Explorations of The Colorado River of The West and Its Tributaries, 103.

³¹William C. Darrah, Powell of the Colorado (Princeton: Princeton University Press, 1951), 142.

³²Wallace Stegner, Beyond the Hundredth Meridian (Boston: Houghton Mifflin, 1954; reprint, New York: Penguin Books, 1992), 110.

³³Telegram to Erastus Snow, September 7, 1869, J. G. Bleak, Bleak's Annals of the Southern Utah Mission, 1870-1872. Subsequently reprinted by William Darrah, 145.

³⁴John Wesley Powell, Explorations of The Colorado -- Diary of the First Trip Through the Grand Canyon, 128-31.

³⁵Paul Bailey, "Jacob Hamblin--Buckskin Apostle," in Powell of the Colorado (Princeton: Princeton University Press, 1951), 154-55.

CHAPTER FIVE

ANALYSIS AND CONCLUSION

Powell's Life--Scope and Importance

Through Powell's leadership of the Colorado River expedition the greatest geological discovery in North America was first charted. This one-armed man only had to do what no person had dared to try. In a journey of this magnitude, encompassing unknown dangers, casualties were expected. The Major completed the journey ninety-eight days later with 30 percent of his team missing--later found killed by hostile Indians, one-third of the boats gone, and most of the scientific equipment missing or destroyed.

This was a time in American history when our heroes were the explorers of the unknown. They enjoyed much the same celebrity status as our present day heroes--action-adventure movie stars and sports leaders. Powell seized the opportunity to quickly launch another expedition to properly document the Colorado's canyon system. Three important facts enhanced his lore and national status as an explorer. First, he was a widely respected military leader. Powell served under important Union leaders at many of the major campaigns of the war. Secondly, he had succeeded both in battle and exploration as a one-armed cripple. America, an "underdog" winner herself, has always had a penchant for the disadvantaged. Lastly, attempts for several decades to repeat Powell's expedition met with disaster and not infrequently death.

Powell used this to his advantage and ultimately to the people of our Nation's benefit. The importance of his work in the areas of Indian ethnology and languages, geology, Western land management and conservation cannot be overstated. The U.S. Government gave Powell leadership of each area, and in most cases he established the corresponding U.S. Bureaus. The great explorer developed into a prolific writer and a careful researcher. His efforts form the foundation in these areas to this day, additionally his Native North American studies established him as a world renowned anthropologist.

Powell's water management studies and pioneer work in irrigation projects of arid regions, formed our Nation's first conservation efforts. To that end, in his leisure, he joined with 32 other renowned naturalist and explorers to form the National Geographic Society. John Wesley Powell's leadership in these areas is unquestioned, but what of his leadership of the Colorado expedition?

Few authors have ever looked at Powell's leadership or at his early life. He was a rare combination of a struggling youth who developed into a military officer, explorer, scientist, and patriot. Each of these facets of Powell's life had in common the mark of excellence, worthy of emulation and study. The few modern authors who have attempted to critique Powell's leadership have fallen short. Their focus always faults his positive disposition in the face of adversity; while his follower's journals reflect their personal discouragement, fear, and disbelief in their leader's security, contentment, and apparent disregard of their perilous situations. A second controversy surrounds the situation at Separation Rapids, where Powell decided to

complete the journey in spite of three individuals refusing to go on. The following day these three men were murdered by Indians. Both of these arguments are spurious, revealing an imperfect knowledge of leadership theory.

Implications

Major John Wesley Powell modestly wrote as his purpose statement, prior to the adventure, "To add a mite to the great sum of human knowledge."¹ An analysis of his leadership further adds to his purpose and demonstrates significant value in studying Powell's methods. A life study allowed us to discover how the genesis of his leadership--the military experience, placed in the crucible of an epic voyage, produced one of our Nation's most selfless leaders in the natural sciences and public service. Major Powell's life up to the conclusion of the expedition down the Colorado River reinforces important aspects of leadership theory.

Leadership Style and Fundamental Expectations

Our modern military leadership doctrine recognizes three basic styles--directing, participating, and delegating.² Leadership style describes the personal approach a leader would select to directly interact with his subordinates.³ During the Powell era, leadership style clearly fell into two camps--an autocratic and a democratic style. The autocrat accomplished his mission through use of legitimate authority and corresponding power provided by position. The democrat sought follower input and used the power of personal persuasion to accomplish tasks. Powell's leadership demonstrates the effectiveness of

transitioning between styles, blending when necessary, and a third form of leadership style--delegation.

The officer, Captain Powell, used a directive style during the Battle of Shiloh when moving his artillery battery from the heights of Pittsburg Landing to critical positions at the Hornet's Nest. He clearly knew what was needed, where to position the cannons, and remained to closely command his position until wounds forced his evacuation. The battlefield requires competent and timely decisions. Powell provided both at this difficult position by giving succinct directions.

Major Powell, as chief of artillery during the Battle of Nashville blended directive and delegating styles to provide decisive artillery support to Major General Thomas' Cumberland Army. He first directed the emplacement of his nineteen batteries on the high ridges behind each of Thomas' divisions and provided signal instructions for their employment. He delegated to each battery commander the decision-making authority on how best to position and support the division once signaled forward by the Major off the ridge and into battle.

The great explorer when faced with a dilemma on how to best navigate the difficult rapids of Flaming Gorge, consulted with the group and adopted the suggestion of Sergeant Bradley. His method Powell termed "lining" allowed the men to lower the boats through dangerous rapids and quickly continue the expedition. Powell's use of a participating style not only allowed him to solve a difficult problem, but also served as a powerful team-building experience that later

carried them through many difficulties. However, this style was not sufficient to keep the expedition together at Separation Rapids.

Our leadership doctrine develops a set of seven fundamental expectations subordinates have in their leader: tactical and technical competence; teacher; good listener, treat them with respect; know the basics; set the example; set and enforce standards. As a young lieutenant, Powell greatly impressed both General Fremont and Grant by his initiative and technical expertise in laying out the defensive works to fortify Cape Girardeau. The lieutenant also left a strong impression on his men in terms of both his knowledge and leadership, while preserving their dignity. This was apparent by the first muster of Battery F, 2nd Illinois Artillery as the battery mustered at full strength, 132 men, of which the vast majority came from the immediate vicinity of Cape Girardeau in Eastern Missouri and not Powell's hometown back in Illinois.

While on the Colorado, Powell transformed a group of adventure seekers and hunters with no experience using scientific instruments into a professional mapping expedition. His patient teaching methods coupled with an ability to answer a myriad of questions came naturally because of his prewar teaching experience. Powell carefully considered and enjoyed fulfilling the expectations of his subordinates. In return he experienced unquestioned loyalty and adherence to his instructions. Nevertheless, this also failed Powell at Separation Rapids.

Leadership Failure

Essentially, the reader must answer the question if Powell exercised poor leadership in failing to persuade the three men to

continue with him. The answer to this question demonstrates the great value to modern military leaders in studying Major Powell's experiences. In short, the Major went to extremes to determine the correctness of his position and convince his men of the soundness of his decision to go on. He was correct in using a participatory leadership style in this nonmilitary environment. As leadership doctrine reveals, as the leader he made the final informed decision to continue the expedition.

Why he failed to retain the men in the end was not a failure of his leadership per se, but demonstrates the limitations of leadership to influence the human moral. French Colonel Ardant du Picq's classic work Battle Studies coincidentally written in the same year as Powell's journey, reveals the relation of the moral to the physical. It correlates to the well-known quote of Napoleon, "The moral is to the physical as three is to one." While today's leader may find himself in different circumstances than Powell, the human element remains the same, capable of just so much endurance, sacrifice, effort, and no more. Colonel du Picq stated, "Man is capable of but a given quantity of fear . . . combat effects a moral cohesion, . . . the more men think themselves isolated, the more need they have of high morale."⁴ The moral courage of Captain O. G. Howland had broken. His boat mates, effected by their shared river experience, were influenced by a moral cohesion to remain by Howland's side, in defiance of their reservations at leaving the Powell expedition.

Senior-Level Leadership

Senior-level leadership, even with its more complex situations and higher levels of command, basically requires the same imperatives of

the junior leader--providing purpose, direction, and motivation.⁵ A junior leader's effectiveness is measured by his direct actions to master the obstacles to achieving the assigned mission. A senior leader's success requires the same, while simultaneously shaping the outcome to contribute towards operational or strategic aims.

It would seem on the surface that the leader of the Colorado expedition fits completely in the realm of a small unit leader. A closer analysis of Powell's actions following his exit from the Grand Canyon, reveal a quantum leap in his fundamental purpose and direction. Major Powell quickly resupplied the crew and sent them on their way to become the first men to travel the length of the Colorado. Meanwhile, Powell realized the scope of work in this region far outstripped his voyage of discovery. He departed with his brother to the East coast. He visualized the significance of his successful journey not as a finale, but as a victory in the opening battle of a long campaign to develop the West. It was not a difficult transition for Powell to think at the senior-level of leadership and visualize the required campaign necessary to reach his strategic vision for the region. He had watched other men quickly transition to higher levels of responsibility: his father's efforts to found Wheaton College, and the rise of General Grant, Sherman, and Howard during the Civil War.

Conclusion

The research conducted in this treatise has convinced the author that Major John Wesley Powell was a superb leader. All leaders could benefit from a careful study of both his small unit and senior-level leadership. To be an effective senior-level leader, you must have

a clear vision of the goal the unit works toward and articulate that vision to your subordinates. Powell's goal was far more than "to add a mite to the great sum of human knowledge" but rather to open the vast resources of the West to all the citizens of America. His subordinates quickly understood the significance of their efforts with the Powell Expedition.

The study of John Wesley Powell's leadership has great relevancy for military leaders today. The only constant throughout the continuum of military history is the character of a soldier's heart and the impact of leader on it. Many military leaders make the mistake of studying the action of generals at the cost of disregarding the value of studying small unit leaders. On the dispersed battlefield of tomorrow a premium will be placed on junior leadership and valor. Consistently each leader that passed the ultimate test of battle knew his men and how to make use of them.

Thus we can see the value in strengthening our leadership theory and understanding junior leadership by studying what took place yesterday, by which we can deduce the requirements of tomorrow. A knowledge of Major Powell's leadership, his strengths and weaknesses will provide the leaders of tomorrow's battles with the manifold tools to effectively wield combat power. John Wesley Powell's life will also provide a trusted role model of one committed to selfless service and the higher ideal of improving the lives of others. Blessed be the peacemakers.

Endnotes

¹John Wesley Powell, Chicago Tribune, dated May 29, 1869.

²U.S. Army, FM 22-100, Military Leadership (Washington: Department of the Army, 1990), 69.

³Ibid.

⁴Ardant du Picq, Battle Studies: Ancient and Modern Battle, translated by Colonel John N. Greely and Major Robert C. Cotton (Harrisburg, PA: Stackpole Books, 1987), 47.

⁵U.S. Army, FM 22-103, Leadership and Command at Senior Levels (Washington: Department of the Army, 1987), 68.

APPENDIX A

PRIMARY DEFINITIONS OF LEADERSHIP

The author used the eleven principles of Army leadership for his analysis of Major John W. Powell's leadership of the 1869 expeditions down the Colorado River. These principles have provided our cornerstone when addressing Army leadership doctrine since 1951. Each of these principles is covered in detail in Department of the Army Field Manual No. 22-100, dated 31 July 1990. They include the following:

1. Know yourself and seek self-improvement
2. Be technically and tactically proficient
3. Seek responsibility and take responsibility for your actions
4. Make sound and timely decisions
5. Set the example
6. Know your soldiers and look out for their well-being
7. Keep your subordinates informed
8. Develop a sense of responsibility in your subordinate
9. Ensure the task is understood, supervised, and accomplished
10. Build the team
11. Employ your unit in accordance with its capabilities

Leadership Defined: Leadership is the process of influencing others to accomplish the mission by providing purpose, direction, and motivation.

The United States Army's doctrine for leadership considers four major factors as always present, impacting on a leader's decisions and actions. They are the led, the leader, the situation, and communications.

The doctrine developed in FM 22-100 clearly teaches the art of leadership is not a intrinsic talent by which a person either has it or not. In contrast, an effective leadership style is attainable through careful study, education, mentoring, observation, and experience. Always striving to achieve excellence in the areas subordinates expect excellence from their leaders: (1) demonstrate tactical and technical competence; (2) teach subordinates, (3) be a good listener, (4) treat soldiers with dignity and respect, (5) stress basics, (6) set the example, and (7) set and enforce standards.

To achieve excellence in performing difficult tasks, often under dangerous, stressful circumstances, a leader must explain the importance of the mission, articulate priorities, and focus subordinate and organization efforts to perform in an efficient and disciplined manner. A key component is the command climate, fostered by the senior leader of the organization.

A healthy command environment is termed a positive command climate providing purpose, direction, and motivation. Purpose allows followers to clearly understand the object of their efforts. Direction provides the reasons for their efforts and actions. Motivation reveals

to subordinates the importance of those efforts to reaching the mission's objective.

The Army's long established Professional Ethic, the last area of leadership reinforced by this study, is critical to a senior leader's ability to achieve difficult missions. This ethic demands of the leader that he set the example to his subordinates to include the areas of duty, selfless service, loyalty, and integrity.

FM 22-103 incorporates the concept of 'vision,' meaning the ability of the senior leader to clearly project where an organization should focus its efforts. The Commander's well-communicated vision makes a unit more efficient by imparting his goals and priorities. Vision also reveals what the endstate is for the unit's efforts.

Napoleon is quoted as saying:

The personality of the general is indispensable. He is the head, he is the all of an Army. The Gauls were not conquered by Roman legions, but by Caesar. It was not before the Carthaginian soldiers that Rome was made to tremble but before Hannibal. It was not the Macedonian phalanx which penetrated to India, but Alexander. Prussia was not defended for seven years against the three most formidable European Powers by the Prussian soldiers, but by Frederick the Great.

Vision becomes the core or hub from which flows the leadership and command forces which fires the will of followers to accomplish the mission. It goes on to provide the characteristics of organization, processes, ethics, skills, and challenges. Each characteristic is critical to weaving the theory of leadership into the tangible domain of the senior leader in action.

APPENDIX B

BIOGRAPHICAL SKETCH OF EXPEDITION MEMBERS

MAJOR JOHN WESLEY POWELL

Powell was born in New York in 1834. In the Civil War he achieved the rank of Major, a title he was called throughout his life. He lost his right arm at the battle of Shiloh. After the war he became a professor, leading natural history expeditions to the Rocky Mountains in 1867-68, and in 1869 leading a party in the first descent of the Green and Colorado Rivers. In 1871 was the first Director of the Bureau of Ethnology. From 1881 to 1894 was also Director of the United States Geological Survey. Powell died in 1902, nationally known as a scientist, administrator, and conservationist.

Sergeant George B. Bradley

Was a New Englander, who served in the War as an Infantry Lieutenant. After the war he was serving a tour at Fort Bridger as a sergeant. Powell received permission to remove Bradley from his unit with discharge papers. Bradley, although having a reputation as a hypochondriac was an experienced boatsman and brave. Scrupulously careful and the strongest man on the expedition. Often when faced with danger he demonstrated a capability for rapid judgment and skill.

Billy H. Dunn

The raven haired Civil War veteran was a close friend with the Howlands, and had completed many hunting trips with the after the war. He, like O. G. Howland, despised the hair clippers and loved to wear fringed buckskins, darkened by sweat and blood. He also made the fateful climb out of the Grand Canyon.

Frank Goodman

The florid-faced Englishman, tried to bribe Powell into taking him on the great adventure. He later quit the team at the last stop prior to the Colorado. The journey was more than a mere adventure it was dangerous work.

Andy Hall

Like Goodman, this husky eighteen year-old Scottish boy was simply looking for a western adventure when he bumped into Powell. A hard worker, never complaining, he often entertained at night with his tale tales of personal adventure.

Billy Hawkins

The Camp cook; this war veteran and one time Great Plains teamster, always maintained a jovial good-nature. He was a true athlete.

Oramel G. Howland

Reputed to have served as a captain in the Union Army. He was once the printer for the Rocky Mountain News. A native of Vermont, he later found himself as the leader of a group of Western mountain men known for their

hunting skills. He had an aversion to hair clippers and the razor, his beard and hair flowed to equal lengths. He left the Powell expedition at Separation Rapids and was murdered by Indians.

Seneca Howland

Younger brother and follower O. G. Howland, Seneca had earned a reputation as a quiet young man. His cheerful disposition and fine character made him the favorite of all. He disagreed with his brother's decision to leave, but in the end joined his brother in a dreadful end.

Captain Walter Powell

Powell's younger brother, served with John as one of his lieutenants until captured during the Atlanta Campaign. He never fully recovered from his 10 months in Charleston Prison. Known for his moody and sarcastic nature; the war experience left him with the ability to calmly face all dangers. Fearless, nicknamed "Old Shady." His cousin, also named Walter replaced him on the return trip two years later.

Jack C. Sumner

A war veteran turned amateur hunter and explorer of the West. He was a fair-haired man of slender build, known for the feat of being the first person wearing snowshoes to cross the Rockies in the winter. The only man from the first expedition John Wesley Powell asked to accompany him on the second expedition; heavy snow prevented him from joining.

APPENDIX C

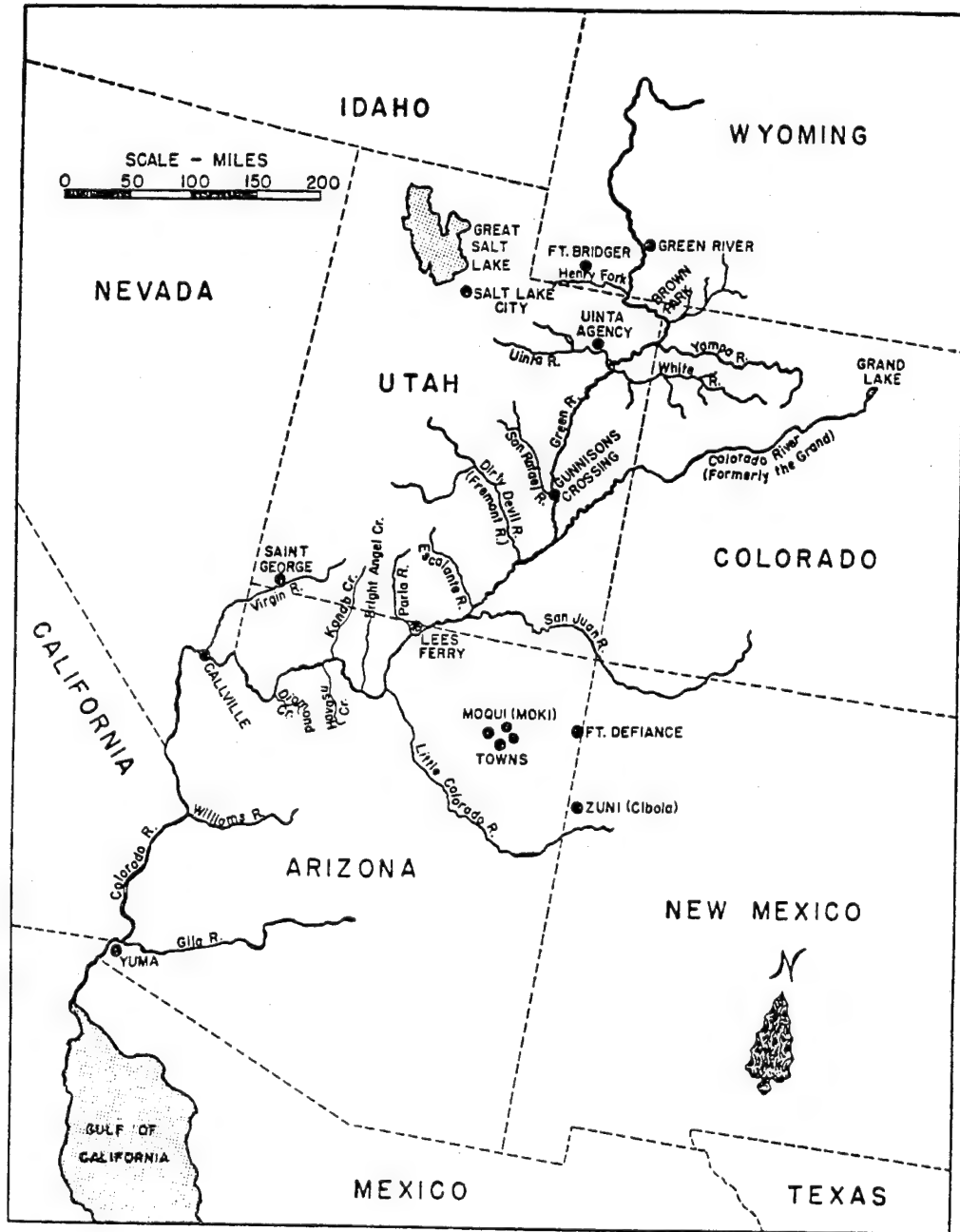
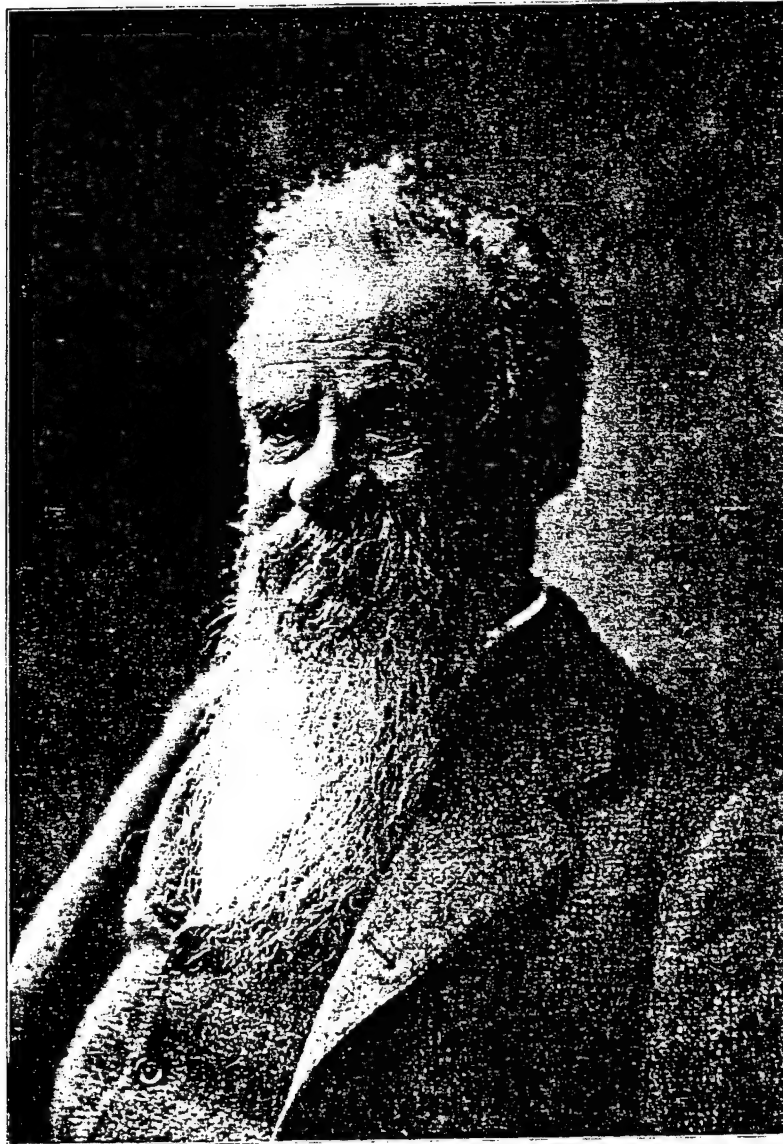


Fig. 7. Modern Map of the Colorado River and Principle Tributaries.



J. W. Powell

Fig. 8. Major John Wesley Powell -- 1834-1902. Reprinted, by permission, from Mrs. M. D. Lincoln, John Wesley Powell -- A Memorial to an American Explorer and Scholar (Chicago: The Open Court Press, 1903), i.



Fig. 9. Major John Wesley Powell with Paiute Indian, 1873 -- Second Expedition. Reprinted, by permission, from US Geological Survey and Bureau of American Ethnology Smithsonian Institution.



Fig. 10. Emma Dean Powell, ca. 1869 and Major John Wesley Powell ca. 1865. Reprinted, by permission, from William C. Darrah, Powell of the Colorado (Princeton: Princeton University Press, 1951), 12.

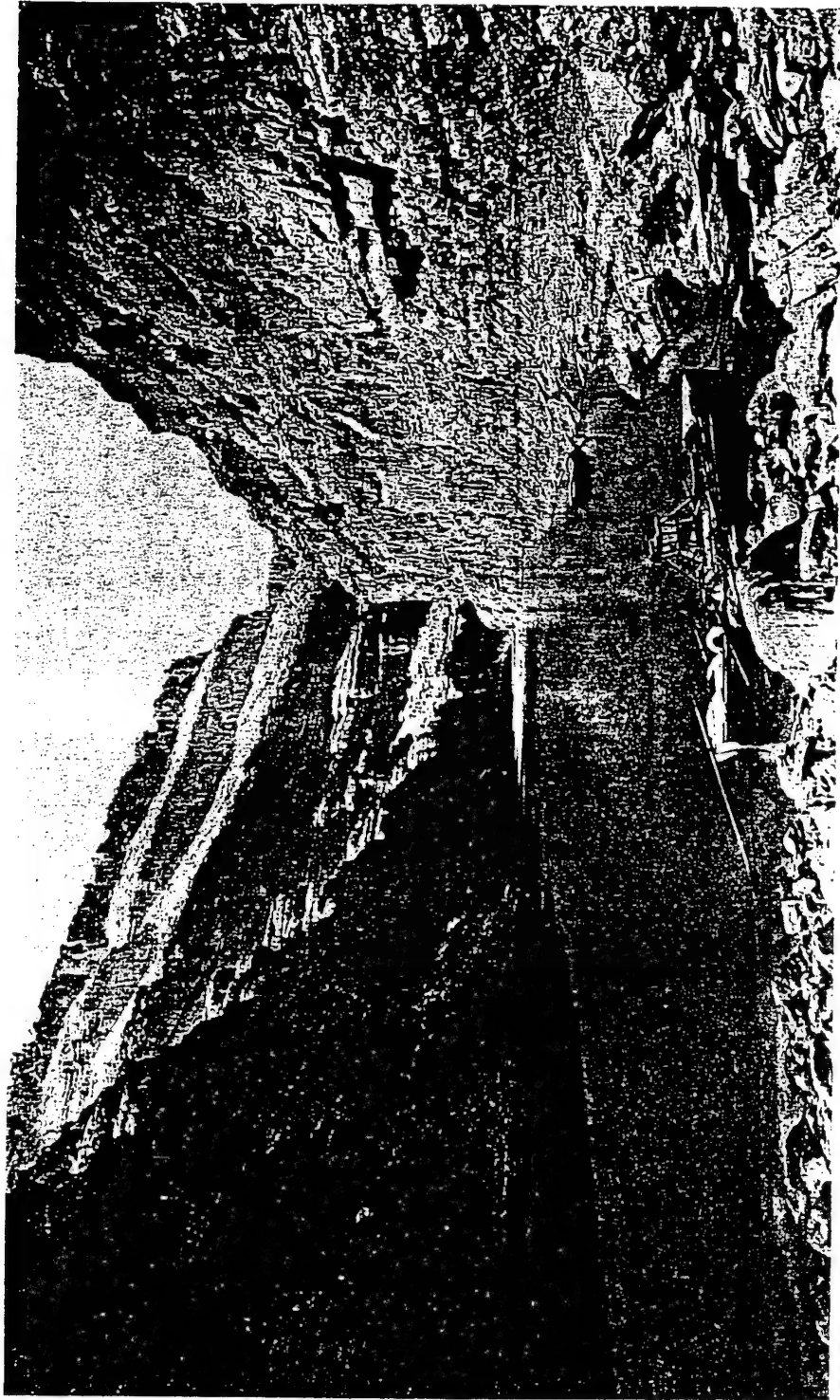


Fig. 11. The Emma Dean showing the armchair in which Major John Wesley Powell sat, 1873 Second Expedition. Reprinted, by permission, from US Geological Survey and Bureau of American Ethnology, Smithsonian Institution.

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Aton, James M. Inventing John Wesley Powell: the Major, His Admirers, and Cash-register Dams in the Colorado River Basin. Cedar City, Utah: Southern Utah State College Press, 1988.

A brief account of John Wesley Powell thought on the environmental management in the arid west and how the nation has deviated from his initial vision for the area and the management of its water resources.

Corle, Edwin. Listen, Bright Angel. New York: Duell, Sloan and Pearce, 1946.

Corle traces the history of the Grand Canyon, to include not only its geological, but anthropological history as well. It contains two chapters on Powell's impact on the canyon. Contains a useful fifty page history of the Spanish and missionary visits to the area which ended around 1776. Provides the usual inaccurate account of Powell's Civil War years. The book provides a useful account of Powell's expeditions into the canyon system.

Darrah, William C. Powell of the Colorado. Princeton: Princeton University Press, 1951.

The book is considered by all serious scholars on the life of Powell as the most complete biography available. Darrah, as a Professor at Princeton spent nearly two decades researching this book. Although not a primary period source I have found very few primary sources which missed the scrutiny of Dr. William Darrah. It is one of only a handful of sources which have any accurate account of his early life. Significant to this author because he first discovered the influence of Increase Lapham on both Joseph and John Wesley Powell's lives. Increase Lapham is this author's forefather six generations removed.

Davis, W. M. Biographical Memoir of John Wesley Powell -- 1834-1902. Presented to the National Academy of Sciences, Autumn Meeting, 1913. Volume VIII. Washington: National Academy of Sciences, February 1915.

A rare document written by his scientific colleagues shortly after his death. Relies on the work down by Dellenbaugh and Lincoln for both of the portions of interest to the author. This Memoir focuses heavily on his later scientific work, and to that

end it is an excellent source. However this is not the purpose of this thesis, therefore its value is diminished. Source: University of Kentucky - rare books.

Dellenbaugh, Frederick S. The Romance of the Colorado River. New York: G. P. Putnam's and Sons, 1902.

Gives an in-depth view of the history of European and American exploration in the Colorado River region and an explanation of the Grand Canyon's formation. The central theme is the two expeditions of John Wesley Powell and a detailed epilogue of Powell's life.

Dellenbaugh, Frederick S. A Canyon Voyage: A Narrative of the Second Powell Expedition Down the Green-Colorado River from Wyoming, and the Exploration on Land, in the years 1871 and 1872. 2nd edition, New York: Putman Press, 1926.

Dellenbaugh at the time only seventeen years old accompanied Powell on his second expedition in 1871. This book is written by the only author to publish books on this expedition. The sole focus of this work is on the 1871-72 Powell expeditions down the Green-Colorado River from Wyoming, and explorations to the nearby lands.

Fowler, Don D. & Matley, John F. Material Culture of the Numa: The John Wesley Powell Collection, 1867 - 1880. Washington DC: Smithsonian Institution Press, 1979.

Fowler and Matley's work presents all of Powell's definitive findings, collections, and photographs of the Numic-speaking Indian groups. The Numa, comprised of principally the Ute & Paiute bands were studied by Powell for twenty years while they were still in their aboriginal state. The first serious look by large groups of Americans occurred in the 1920's and by that time much of their culture had vanished. This work provides insights into the Indians who populated the areas the two expeditions traveled through while on the river.

Fraser, Mary Ann. In Search of the Grand Canyon: Down the Colorado with John Wesley Powell. Holt, MI: Redfeathers books, 1995.

A new entry on Powell, it is loaded with excellent pictures, maps, and illustrations. Fraser makes an interesting narrative story of the expedition by using Powell's journal to supplement the canyon adventure. Useful for the bibliography and provides more in-depth coverage than is found in the National Geographic accounts. Her theme is how Powell kept the expedition together (through her vivid accounts of the danger), when most men would have quit. She then goes into a modern warning to take care of this inheritance and other conservation discussions which are germane to this work. A modern secondary source with a strong leaning in favor of Powell. Relies excessively on later secondary sources and appears not to utilize the best primary sources.

Gilbert, Grove K. John Wesley Powell Biography. See: Lincoln Mrs. M. D. & Grove K. Gilbert. John Wesley Powell - A Memorial to an American Explorer and Scholar.

Goetzmann, William H. Exploration and Empire. New York: Random House, Inc., 1966.

Contains various chapters of the great explores of Western North America. John Wesley Powell's section covers forty-nine pages of carefully researched material. Goetzmann makes considerable use of Lincoln, Darrah, Watson's material, but also validated each source. He carefully justifies where his findings differ or when stated facts are not collaborated by a secondary source. He looks at the controversy surrounding the departure of the men on Powell's first expedition and supports Powell's account.

Hillers, John K. Jack Hillers's Diary of the Powell Expeditions, 1871-1875. Edited by Don D. Fowler. Salt Lake City, Utah: University of Utah Press, 1972.

The diary covers the period from May 16, 1871, through October 26, 1872, as well as five days (September 11-15) in 1873, and the period of May 1 through June 10, 1875. This book by Fowler was the first release of Hillers diary to the public and has proven useful to balance other accounts.

Illinois at Vicksburg. Published by the Illinois-Vicksburg Military Park Commission, 1907.

This rare book is filled with researched and detailed accounts of every unit from the State of Illinois participating in Vicksburg campaign. Valuable primary source as it provides a detailed account of heroic deeds of Powell and his unit and the units history. Shows a picture of the monument to Powell and Battery F, Second Regiment Light Artillery and memorial plaque. Both of these honors are located at the battlefield site.

James, George W. In and Around the Grand Canyon. Cambridge: University Press, John Wilson & Son, 1901.

This book is dedicated to Powell by James, who provided him encouragement for conducting a methodical survey of the canyon. Powell's expedition is covered in one chapter with liberal usage of Powell's journals. This book contains numerous pictures of the area and its people. One of the first generation of secondary sources, a limited edition book which was not cited by later authors

Krutch, Joseph W. Grand Canyon - Today and All Its Yesterdays. New York: H. Wolff, 1958.

Lavender, David. River Runners of the Grand Canyon. University of Arizona Press, 1986.

Lincoln Mrs. M. D. & Grove K. Gilbert. John Wesley Powell - A Memorial to an American Explorer and Scholar. Chicago: The Open Court Publishing Company, 1903.

Certainly ranks as "the primary source" of information on Powell's youth and Civil War years. This biographical sketch was written by Mrs. Lincoln (Bessie Beech, published originally in "Open Court", volume 16, 1902, pgs. 705-15, and reprinted, with revision, in 1903 in Gilbert's edition, "John Wesley Powell - A Memorial to an American Explorer and Scholar." This sketch was based on a series of interviews with Major Powell from 1885 through 1895. Scattered through Powell's letters to Mrs. Lincoln and interview notes are numerous references to his childhood in Ohio and Wisconsin, and his civil war experiences. The author will use this as the primary source for anecdotes and instances, and substantiate it with William Culp Darrah's, "Powell of the Colorado," and Frederick S. Dellenbaugh, "The Romance of the Colorado River."

Muir John. Steep Trails. Boston: Houghton Mifflin Co., 1918.

A great naturalist of a generation after Powell. This book finds Muir, a gifted writer going to various natural wonders of America and giving vivid accounts of his journeys. Muir dedicated one entire chapter to his impressions of the Grand Canyon, in 1902. Speaks very highly of what John Wesley Powell must have experienced on the first journey. He freely speaks of the heroic efforts by all on the first Powell expedition.

Murphy, Dan. John Wesley Powell -- Voyage of Discovery. Las Vegas, NV: KC Publications, 1992.

Modern, but well researched brief account of the 1869 expedition. This short account is popular with people with a passing interest in Powell or the Grand Canyon. Contains dozens of stunning color photos of the route Powell traveled with the exception of those areas now under water by the damming of portions of the river.

du Picq, Ardant. Battle Studies: Ancient and Modern Battle. Harrisburg, PA: Stackpole Books, 1987.

A translation by Colonel John N. Greely and Major Robert C. Cotton 1920. The premier historical work on the nature of man in combat, its enduring value, and the importance of understanding the effect of leadership on him.

Place, Marian T. John Wesley Powell: Canyon's Conqueror. New York: Houghton Mifflin Co., 1963.

This is a bibliography of Powell's life and provides important insights into his life prior to the expeditions. Limited

use because of its youth orientation. Especially useful for Powell's youth and Civil War experiences.

Powell, John Wesley. Reports of Explorations in 1873 of The Colorado River of The West and Its Tributaries. Washington: Government Printing Office, 1874.

Contains a brief summary of the original expedition and the results of the survey of 1872-73. Powell goes into great detail about his careful research and methodology used to provide a brief summary in numerous areas ranging from mineralogy to demonology.

_____. Explorations of The Colorado River of the West and Its Tributaries. Washington: Government Printing Office, 1875.

An exciting (Primary Source) account of the first expedition, but uses events from the second expedition to round out the story. This is the official report submitted to Congress containing a scientific analysis of the region and a detailed discussion of Powell's methodology which eventually evolved from an expedition into a comprehensive survey encompassing the geology, geography, ethnology, and natural history.

_____. Canyons of the Colorado. Washington: Flood And Vincent, 1895.

A gripping (Primary Source) account of the first expedition, but does uses events from the second expedition to round out the story. This is a narrative report for the general public using the report he submitted to Congress containing a scientific analysis of the region and a detailed discussion of Powell's methodology which eventually evolved from an expedition into a comprehensive survey encompassing the geology, geography, ethnology, and natural history. Contains additional information on the Indian cultures observed in the arid west.

_____. Exploration of The Colorado River. Dover, Delaware: Dover Press, 1961.

A zestful (Primary Source) account of the first expedition, but does uses events from the second expedition to round out the story. This is an unabridged and unaltered reproduction of the work first published by Flood & Vincent in 1895 under the title of Canyons of the Colorado. This is a narrative report for the general public using the report John Wesley Powell first submitted to Congress. The book contains a scientific analysis of the region and a detailed discussion of Powell's methodology which eventually evolved from an expedition into a comprehensive survey encompassing the geology, geography, ethnology, and natural history. Contains additional information on the Indian cultures observed in the arid west.

. Down the Colorado - Diary of the First Trip Through the Grand Canyon. Edited by Eliot Porter. New York: E. P. Dutton & Co., Inc., 1969.

Porter has used Powell's original report and diary first published in Scribner's Monthly in 1874-75 and in book form under the title of Explorations of the Colorado River of the West and Its Tributaries printed in 1875. It contains an informative foreword of Powell's life from the initial expedition onward. Throughout the book Porter includes stunning modern photographs accompanied by those from the second expedition and numerous sketches by F. S. Dullenbaugh. A brief caution is warranted as the exact daily accounts are often edited by Porter but with little effect on the overall story.

Rabbitt, Mary C. "John Wesley Powell: Pioneer Statesman of Federal Science," chap. in The Colorado River Region and John Wesley Powell. United States Geological Survey Professional Paper 669. Washington: Government Printing Office, 1969: 1-22.

Rabbitt's paper covers Powell's life from birth to death, spending the majority of her time on the two expeditions. The majority of her sources are primary with two exceptions. Provides a useful account, well-researched and an extensive bibliography is provided.

Sarles, Frank B. John Wesley Powell and the Colorado River: A Special Study of the Colorado River Expeditions of 1869 and 1871.

Stegner, Wallace Earle. Beyond the Hundredth Meridian: J. W. Powell and the Second Opening of the West. Cambridge, Mass.: Riverside Press, 1954.

Considered the authoritative biography on Powell from the time of the expeditions onward. Stegner himself states, "it is the history of a career rather than a personality," hence it begins with the first expedition. The real theme of this well researched book is the development of the West following the expeditions with Powell as the man with the proper vision for its development but disregarded until our generation.

Vance, J. W. Report of the Adjutant General of the State of Illinois: 1861-66. Volume VIII. Springfield: H. W. Rokker, State Printer, 1886.

A rare primary source find. This contains the organizational record of the Illinois Second Regiment Light Artillery, and specifically Battery F, organized by Powell in 1861. Also provides details of Battery F's participation in the battle of Shiloh and details the account of Powell's wounding.

Wallace, Robert. The Grand Canyon. New York: Time Inc., 1972.

A good source for initial background on the Grand Canyon and Major John Wesley Powell's connection with the canyon. It

contains an abridged version of the first expedition and key days from Powell's diary provide weight to Wallace's claim of the difficulties the expedition faced. Contains excellent reproduced drawing from Powell's and Dellenbaugh's books which are long out of print and difficult to obtain.

The War of the Rebellion. A Compilation of the Official Records of the Union and Confederate Armies. 128 vols., Washington, DC: War Department, 1880-1901.

Discovered numerous passages regarding Powell which made tracing his advancements and campaigns easy to trace. A Particular interesting point was Powell's serving with 5 future Presidents during the battles of Shiloh, Vicksburg, Atlanta, and Nashville. Also Powell established early on a close relationship with U.S. Grant.

Waters, Frank. The Colorado. New York: J. J. Little and Ives Co., 1946.

Provides an excellent history of the river from the Conquerors and Missionary efforts from 15-1700's to the modern damming of the river. A full third of the book discusses the geology of the river and impact in the area. Powell's expeditions are condensed into eight pages. It's great value is the review of most primary source books written about all expeditions up to 1923.

Watson, Elmo Scott. The Professor Goes West. Evanston, Illinois: Ill. Wesleyan University Press, 1954.

The life of Powell is reviewed from his post-civil war years through the remainder of his life. An excellent book written by a faculty member of the College which first hired Powell. This obscure work used primary letters, dairies, and journals used in only a limited number of secondary sources. A must read to gain the scope of the expeditions and understand Powell.

Weland, Gerald. "Stalking Peace," in Front and Center. Edited by L. James Binder. Washington: Brassey's Inc., 1991. Pgs. 25-33.

Biography on the life of MG O. O. Howard and comments on how his religious faith and Civil War experience later combined to allow him to accomplish great works. Howard's life parallels Powell in many ways, which allows for analysis of their leadership styles.

Welcher, Frank J. The Union Army 1861-65. Volume II. Bloomington: Indian University Press, 1993.

This fine work contains dozens of references to Powell, his brother - Walter, and the Illinois Second Regiment Light Artillery. This book provides very detailed accounts of every battle Powell's unit participated.

Periodicals and Articles

Anderson, Martin J. "John Wesley Powell's Exploration of the Colorado, Fact, Fiction, or Fantasy?" The Journal of Arizona History 24, no. 4 (1983): 363-380.

Was very helpful to gain an understanding of the controversy surrounding Powell's account of the first expedition. Anderson demonstrates through careful research, well-documented by endnotes of primary sources that Powell's report of the first expedition is really a combination of the two expeditions, A. H. Thompson's notes, and sheer creative license to produce the report.

_____. "Artist in the Wilderness: F. Dellenbaugh's Grand Canyon Adventure." The Journal of Arizona History 28, no. 1 (1987): 47-68.

Once again Anderson provides a carefully researched work on Powell's expeditions. This time he uses Frank Dellenbaugh's account of the second expedition. The article points out the errors which occurred when Thompson's handwritten accounts were transcribed by Dellenbaugh in 1929. These errors range into the hundreds, with numerous omissions, and in the end, bring into question the validity of what is often considered a primary source -- The Journals of A. H. Thompson. Fortunately the original notes still exist in the New York City Library and Anderson has carefully translated it afresh. This is an excellent resource and provides a brief biography of Dellenbaugh's life and detailed sources for future research.

Lavender, David. "First Conquest of the Colorado." National Parks 60, no. 5-6 (May-June 1986): 16-21.

Good source for the first expedition, but the author apparently is not familiar with military leadership theory and makes several oversights in researching Powell's background and Civil War record.

Miller, Peter. "Vision for the West." National Geographic, (April 1994): 89-115.

Contains an excellent 26 page account of Powell's life, with a heavy focus on the first expedition and his later efforts with Indians and management of the Western Frontier. Like other National Geographic articles it contains no footnotes which certainly would be helpful.

Monastersky, Richard. "What's New in the Ol' Grand?" Science News 132, no. 25 & 26 (December 19 & 26, 1987): 392-395.

Provides the latest in geological theory about the development of the Grand Canyon. Compares Powell's original theory with later geologists and finds that portions of both theories are correct. Useful in a brief summary of the initial

expedition, history, and Ute Indian theory on the canyon's development which Powell recorded.

The Open Court. (December, 1902, to June, 1903) Chicago: The Open Court Publishing Co. Lincoln Mrs. M. D. & Grove K. Gilbert.
John Wesley Powell - A Memorial to an American Explorer and Scholar. Chicago: The Open Court Publishing Company, 1903.

Government Documents and Manuals

Headquarters, Department of the Army. Operations. Field Manual (FM) 100-5. Washington DC: Government Printing Office, June 1993.

Headquarters, Department of the Army. Military Leadership. FM 22-100. Washington DC: Government Printing Office, July 1990.

Headquarters, Department of the Army. Leadership and Command at Senior Levels. FM 22-103. Washington DC: Government Printing Office, June 1987.

United States Congress, Report of the Joint Committee on the Conduct of the War, Washington, DC 1863.

United States War Department, The War of the Rebellion, A Compilation of the Official Records of the Union and Confederate Armies, Washington, DC 1880-1901.

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